Med.

Medical Library

AUG 11 1941

BRITISH MEDICAL JOURNAL

JOURNAL OF THE

BRITISH MEDICAL ASSOCIATION

SATURDAY JULY 12 1941

PRINCIPAL CONTENTS

Problems of the Circulation—I .. p. 39

Local Treatment of Burns .. 41

Treatment of Burns by Envelope Irrigation 46

Mumps Meningo-encephalitis .. 48

Treatment of Impotence 49

Medical Memoranda 50

Leading Articles .. .. .. p. 53

Correspondence 64

Chest Surgery in War: No. 7 .. 57

Regionalization of Hospitals and Health Services 60

Motor Barge as Ambulance Ship 59

Reviews 51

WITH SUPPLEMENT

LONDON

BRITISH MEDICAL ASSOCIATION

TAVISTOCK SQUARE

No. 4201, WEEKLY, PRICE 1/3

Copyright

REGISTERED AS A NEWSPAPER

BROMIDES

in a palatable form

'TABLOID'
THREE BROMIDES
EFFERVESCENT

For patients in need of a light sedative 'TABLOID' THREE BROMIDES, Effervescent, fulfils requirements safely and effectively. The course of treatment can be followed without interfering with the patient's normal routine. The exhilarating sparkling draught produced by dropping these compressed products into a tumbler of water solves the problem of administering bromides in a palatable form. Their precision of dosage is such as is characteristic of all 'TABLOID' Compressed Products.

The combination of the three bromides is considered to be preferable to a single salt for prolonged administration.

'Tabloid' Three Bromides, Effervescent, is prepared to the following formula:

℞ Potassii Bromidi 0.4 gramme (gr. 6-1/4 approx.)
Sodii Bromidi 0.4 gramme (gr. 6-1/4 approx.)
Ammonii Bromidi 0.2 gramme (gr. 3 approx.)
Salis Effervescentis *q.s.*

and is issued in convenient tubes of 25 products at 2/3.

London Price to the Medical Profession, subject to Medical discount. Liable to Purchase Tax.

BURROUGHS WELLCOME & CO.
(THE WELLCOME FOUNDATION LTD.)
LONDON

Associated Houses: NEW YORK MONTREAL SYDNEY CAPE TOWN BOMBAY SHANGHAI BUENOS AIRES

H. 4042

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 12 1941

PROBLEMS OF THE CIRCULATION *

BY

R. J. S. McDOWALL, M.D., D.Sc.

Professor of Physiology, King's College, University of London

The honour of presenting these lectures, which have been given by many of the most distinguished names in medicine, carries with it great responsibilities, but I have at least simplified the task of choosing a subject by taking one akin to that of Oliver himself, who endowed and gave the first Sharpey lecture. In these material days a word regarding the founder may not be out of place, for George Oliver set an example by showing how the practising physician may with great advantage occupy his leisure and contribute to the advance of knowledge. Although a practitioner in Harrogate, he found time to make a most remarkable number of original observations, many of which are little known. His most notable discovery was that of the action of adrenal extracts. This he achieved by administering them to his children by the mouth and observing with his arteriometer the diameter of the radial artery, which he found to be constricted. His results are described in his Croonian lectures to this College (Oliver, 1896). The injection by Schäfer of the substance into a dog was found to cause a rise of blood pressure, and subsequently Oliver and Schäfer (1894) worked out the exact cause of this rise. Their paper is a model to all beginners, and this work started Schäfer, up to that time essentially a histologist, on an experimental career. It is a strange sidelight on human endeavour to remark that the apparatus with which the historic observation was originally made is no longer in common use, even although nothing has yet been invented to give any better information regarding the state of the arteries in man.

But Oliver did not mention these observations in his first Sharpey lectures; rather he discussed the flow of lymph, for in this field his investigations were even more extensive and just as important, although less well known. By a remarkable series of simple experiments he concluded that there must be a return of fluid from the tissues other than by the lymph, and emphasized the necessity for a variability of capillary permeability to permit this. His conception was that the tissue fluid returned to the capillaries at their venous ends, and in this he anticipated our most modern views on the subject. Some may be familiar with his ingenious haemoglobinometer and haemacytometer, with which he made extensive studies of the blood in a large number of different states, and which preceded most of the apparatus now in common use for this purpose.

Problems of Adrenaline

When Oliver gave adrenaline to the world he gave also a host of problems which have absorbed the energies of a legion of physiologists, and which will outlast our time. Many of these are not only of fundamental physiological importance but are of great therapeutic significance. It is interesting to compare the position to-day with that given by Schäfer in his Oliver-Sharpey lecture of 1908.

Further studies of the action of adrenaline have shown that its action is not so simple as at first sight appeared. The original observation indicated that the rise of blood pressure caused by the intravenous injection of extracts of the medulla of the adrenal gland was produced by a constriction of peripheral vessels, together with an increased action of the heart if the vagus nerves were cut, but if the latter were intact the rise of blood pressure was reduced by cardiac slowing, the result of increased vagus action. These facts are not disputed, but subsequent work has shown that the doses which produce these results are much beyond that ever secreted by the adrenal glands. Moreover, it has become apparent that the essential function of adrenaline is the transference of blood from one part of the body to another and that this is not necessarily accompanied by any rise of blood pressure, for adrenaline dilates certain vessels and constricts others. Further, with such small doses cardiac acceleration is the rule, although the vagus is intact; indeed, the action of the vagus is reduced. It is possible, for example, to demonstrate in several ways a marked dilatation of the vessels of the muscles and a constriction of the vessels of the skin with doses which do not raise the arterial pressure at all.

The activity of these small doses fits much more clearly into the picture of the function of adrenaline, especially when we consider the circumstances in which adrenaline can be shown to be normally secreted—namely, mental stress, severe exercise, and exposure to cold—and this has been still further emphasized by the most recent evidence that an adrenaline-like substance, if not adrenaline itself, is liberated in the region of sympathetic nerve endings. All this agrees with the general conceptions of the action of adrenaline, which has been very much extended since the time of Oliver. Now we know that, like the sympathetic nervous system, it prepares the body for and assists in the adaptation to physical exercise. Not only does it transfer blood to the muscles from the parts of the body less used in exercise, but it throws out of action the alimentary canal by inhibiting the secretion and movements of the intestine while constricting the sphincters, it dilates the bronchi, the coronary arteries, and the pupil, and causes the liver to liberate glucose. Moreover, there is evidence (Burn, 1933) that the amount of circulating adrenaline affects the sensitivity of the sympathetic.

The appreciation of this action of small as distinct from large doses is not without considerable clinical importance, and may dispel certain misconceptions. For example, the well-known statement that chloroform plus adrenaline is very apt to bring about cardiac fibrillation probably requires modification: the experiments certainly require repetition. The whole problem of the clinical dose of adrenaline also needs consideration. Actually the usual clinical dose of adrenaline (1 to 5 minims of a 1/1,000 solution) is enormous, but fortunately it is as a rule given hypodermically. It is not surprising that the administration of a similar dose injected intravenously may have very alarming results, especially if the increased vagus action manifests itself. At the same time there is no obvious reason why intravenous therapy and the use of carefully adjusted small doses controlled by blood-pressure readings should not be more extensively used to tide over emergencies, except that the benefit would be short-lived.

* The first of two Oliver-Sharpey lectures to the Royal College of Physicians of London.

Differential Action of Adrenaline

One of the most interesting problems is why adrenaline dilates some vessels and constricts others. This differential action is probably best seen in the effects of small doses on the volume of the skinned and unskinned limb. The skinned limb dilates, while the normal limb constricts (Hoskins, Gunning, and Berry, 1916). It is true that the removal of the skin cannot be considered physiological; but a study of the venous outflow produces similar results, as does also that of isolated vessels. When we consider the problem of this differential action several possibilities present themselves, and we must remember that the problem exists not only in relation to the circulation but in respect of the other inhibitory actions of adrenaline, such as the dilatation of the bronchi and the inhibition of the intestine. Since no dissimilarity in histological structure can be discovered between the vessels which are dilated and those which are constricted, the difference may be chemical or environmental. Bacq of Liége has put forward considerable evidence that in certain organs which are inhibited there is present an enzyme which converts the adrenaline constrictor response into a dilator one. These experiments are extremely difficult to repeat, possibly because the exact conditions needed are not well enough known. Another possibility suggested by experiments on isolated vessels is the calcium-potassium balance and the acidity, acting separately or together. It would appear reasonable to imagine that the environment of the vessels of the skin is in both these respects materially different from that in the more active muscles. On the other hand, it has been demonstrated (Cow, 1911; Argyle Campbell, 1911) that vessels taken from different parts of the arterial tree behave differently though treated similarly. The problem is still further complicated in that the adrenaline reaction is also affected by the tone obtaining in the vessels at the time. Thus the dilator response of the vessels of the muscles to adrenaline by denervation is abolished (Hartman and Fraser, 1918) and may be reversed by section, in the cat, of the abdominal sympathetic, causing a relaxation of its normal tone, which we believe is kept up by the liberation of adrenaline at the sympathetic nerve endings. The dilatation, however, will return in from two to ten days when the vessels have regained their tone (Dale and Richards, 1918; Hartman, Kilborn, and Fraser, 1918), and even in isolated vessels if special steps are taken to maintain tone, such as adding adrenaline and red blood corpuscles to the perfusion fluid (Dale and Richards, 1918) or by perfusing with a calcium-free fluid (McDowall and McWhan, 1937). It would appear, then, that the nature of the response to physiological doses of adrenaline depends on the state existing in the muscle at the time the adrenaline is applied. It seems not improbable that the problem of adrenaline reversal and differential action is closely bound up with that of the intimate nature of muscular contraction itself.

Origin of Adrenaline

Another problem in relation to adrenaline is its exact origin. We know its chemical constitution and its relation to tyrosine, and the evidence is very considerable (Burn, 1933) that dioxyphenylalanine is an intermediate product, but we still do not know all the steps in its normal formation. The solution of this problem is obviously of great clinical importance, as it might become possible to supply the body with chemical substances which facilitate the formation of adrenaline and thus enhance many reactions which, in some persons, especially the debilitated, appear to be deficient. It may be that a study of the steps in the formation of the adrenaline-like substance in common broom (Gorrill, D'Silva, and McDowall, 1935) may throw light on the subject.

The problem of the destruction of adrenaline is no less important, for by preventing it, in a way similar to the enhancement of the action of acetylcholine by eserine, we might be able to prolong its activity and thus greatly increase its value, for the rapid destruction of adrenaline is its greatest disadvantage in therapeutics. A considerable amount of work has been done on the subject, notably by Heard and Welch (1935) and by Richter (1940), which at present is only of academic interest, but which shows that enzymes are involved in the destruction of adrenaline, and that this destruction may be reduced by compounds containing the SH group. According to Gaddum (1939), ephedrine inhibits the action of the destroying enzyme.

In the Oliver-Sharpey lectures of 1939 Gunn indicated that the many substances which act somewhat like adrenaline depend for their action on a similar chemical structure. Such work shows that it is possible to design new substances which may have the same action as but are less easily destroyed than adrenaline itself. So far these are little more than laboratory investigations, but the results indicate that considerable progress of great clinical importance may be anticipated.

Thus it is quite fair to say that Oliver by his discovery of the action of adrenal extracts showed us a new and undreamt-of world, and at the same time made us aware of even more undreamt-of secrets.

Function of the Carotid Sinus—a New View

When the activity of the carotid sinus at the bifurcation of the common carotid was discovered by Hering in 1925 it was almost taken for granted that its function was the maintenance of the arterial pressure at a constant level, the more so as such a function had already been admitted for the aortic depressor nerve. The evidence on which this view rested at first appeared unequivocal. Briefly, it was this: The lowering of the blood pressure in the sinus or painting it with cocaine resulted in a rise of arterial pressure and cardiac acceleration, while a raising of the intrasinus pressure or mechanical stimulation of the area had the opposite result—namely, cardiac slowing and vasodilatation. A remarkable series of experiments, especially by Heymans and by Koch on the isolated sinus attached to the body only by nerves, seemed to put the matter beyond dispute.

A general study of the problem, however, especially in more intact animals, has indicated that it is not so simple as at first sight appears; indeed, already it has become evident that the above theory of the function of the sinus is certainly incomplete and may in part be quite erroneous. The experimental findings are not disputed, but when they are taken into consideration with many of the other known facts of the circulation, the so-called "buffer action" of the aortic and carotid nerves becomes not a little reminiscent of the "phlogiston" theory of oxidation and respiration, in which the significance of the facts, especially the role of carbon dioxide, became almost inverted.

A few general facts regarding the circulation are outstanding, and of these the most important is that the blood pressure rises normally in man and animals in spite of the carotid and aortic reflexes. This rise occurs typically in mental stress and in exercise, and is accompanied by cardiac acceleration. Moreover, the arterial blood pressure is maintained at a constant although higher level after section of the carotid and aortic nerves, in spite of changes of posture and small amounts of haemorrhage.

If the effects of haemorrhage on the reaction of the carotid sinus are studied in animals in good condition most

unpredictable results are obtained. It might be expected that a fall of pressure in the sinus would bring about generalized vasoconstriction and the recovery of the blood pressure until all the vasoconstriction was used up, as it were. This is the general idea that may be read in most descriptions of the function of the sinus. Experimentally, just the opposite occurs. The blood pressure may fall 25% without the carotid sinus apparently taking any action in its recovery; indeed, the response to occlusion of the carotid may at first be even greater than before. The blood pressure may, indeed, be reduced by 30% before there is a significant fall in the responses of the sinus; while vagus restraint, which we believe is dependent on the depressor reflexes, although reduced, is still retained. A study of the currents of action of the depressor nerve indicates that if a fall of blood pressure is caused by placing the animal in the feet-down posture the electrical changes are reduced for a very short period but are resumed although the arterial pressure is low (Greenwood and McDowall, 1937). It would seem very doubtful whether the recovery from haemorrhage, at least from small amounts, involves the carotid sinus mechanism at all. All that can be demonstrated is that the reactions of the vasoconstrictor centre to falls of pressure in the sinus are increased. This is seen in the increased rises of arterial pressure which occur if the sinus is occluded and by the increased constriction of the spleen and the intestine.

Function of the Depressor Reflexes

We may ask, What, then, is the function of the depressor reflexes from the carotid sinus and cardio-aortic region? A clue would seem to be given by a detailed study of reactions of the aortic depressor or of the sinus, the nerve from the sinus being difficult of access. It is now evident that all procedures which reduce the restraining influence of the vagus on the heart reduce the reaction to carotid occlusion. Of these the most notable are a rise of venous pressure and the injection of small amounts of adrenaline, following which the response of the sinus to carotid occlusion is reduced and may even be abolished for a short time after the arterial pressure has returned to normal. Now, it has been amply shown that the normal vagus restraint of the heart is dependent on the depressor reflexes from the sinus and aorta, and that the most important cause of the acceleration in exercise is a reduction of vagus action. It is but a step to imagine that at the same time the vascular component of the depressor reflexes is reduced also, and that circumstances which reduce vagus restraint reduce general vasodilatation also. Thus as the heart beats faster the blood depots constrict and return more blood to the heart.

It appears, then, justifiable to assume that the function of the depressor reflexes is not to prevent a rise of blood pressure but actually to facilitate such a rise, just as the cardiac inhibitory reflexes through the vagus do not prevent normal cardiac acceleration but, by producing a low resting level, confer on the heart a larger range of activity.

Various other pieces of evidence go to support this view. Bayliss, for example, found that stimulation of the aortic depressor nerve resulted in a fall of both arterial and venous pressures—i.e., a greatly increased capacity of the circulation—while it may readily be shown that the reverse occurs on cutting out the sinus. Recently Barry and Loughnan (1941) have demonstrated that carbon dioxide causes a reduction of the activity of the depressor nerve relative to the activity of an ordinary pressor nerve.

It may well be asked how this view of the carotid sinus action was overlooked by Continental workers; but the explanation is clear. In their desire to obtain the maximum responses from occluding the sinus the aortic depressor nerves were cut at the same time—i.e., all the depressor reflexes were cut off suddenly and simultaneously—with the result that such an intense increase of the peripheral resistance occurred that there was a cardiac failure and, according to Heymans in his monograph, an accumulation of blood in the arteries—a fact which is a little difficult to conceive. If, however, less drastic procedures are adopted it is easy to demonstrate that there is a rise of venous pressure and increased cardiac output—a view with which Heymans subsequently agreed.

In exercise, then, it may be considered that the reduction of the sinus reflexes not only promotes acceleration of the heart but at the same time constricts the blood depots and makes more blood available to the active muscles. Thus we may understand that the right auricular reflex of Bainbridge, by which an increase of venous pressure reduces vagus restraint, also has a vascular component, and experimental evidence of this has already been put forward (McDowall, 1934).

The acceptance of this view of the function of the carotid sinuses has some important clinical corollaries. We see, for example, why it is that mental stress, such as that of recruits for the Services undergoing medical examination, a rise of systolic but not of diastolic pressure is commonly found. This must be produced by an increased output of the heart per beat, and, for reasons just indicated, is easily explicable as a result of reduction of the activity of the depressor reflexes and of more blood being returned to the heart. It would seem, too, that the depressor reflexes, by controlling the blood depots, make available a large quantity of blood which is available not only for exercise but for areas demanding blood, as in inflammation. All this conception of the function of the sinus depends on the existence of a circulation of variable capacity.

(The second of these lectures will appear in next week's issue with a short bibliography.)

THE LOCAL TREATMENT OF BURNS

BY

R. S. BRUCE PEARSON, D.M., F.R.C.P.
E. E. LEWIS, F.R.C.S.

AND

R. B. NIVEN, B.M., B.Ch.

Medical Officers in the E.M.S., King's College Hospital

In dealing with patients suffering from burns two separate problems arise—the treatment of shock and the local treatment of the burnt areas. This paper is concerned only with the latter. Two recently introduced methods of treatment have been mainly employed, and these have been compared with each other and with other better-known methods.

The irrigation envelope introduced by Bunyan (1940) has been used for treatment of burns involving the limbs and the trunk, while the application of sulphanilamide powder and tulle gras as recommended by Matthews (1941) has been employed mainly for faces, but also for burnt areas on the limbs and trunk. In addition tannic acid and triple dye have been used. A brief description of the technique employed by us is given.

Technique

In all cases except two the burnt area was thoroughly cleaned under an anaesthetic as soon as the patient's general condition permitted. Soap and water or, in some cases, ether soap followed by spirit was used for this

purpose. Dead skin was cut away. These procedures were carried out with the least possible trauma, but preliminary cleansing was thorough. When the irrigation envelope was used any unburnt areas of skin to be enclosed in the bag were washed and, in the case of hands and feet, the nails were cleaned so far as possible.

The Irrigation Envelope.—After cleansing sulphanilamide powder was liberally sprinkled over the burnt area and the bag was then drawn on and fixed in position with adhesive webbing. Care was taken to avoid applying this too tightly in the case of limbs lest it should increase the oedema of the burnt area. The patient was then left for twelve hours, after which any oedema fluid that had collected was drained off and the first irrigation with electrolytic hypochlorite solution ("milton") carried out. This was used in the strength of 2½% of the actual solution supplied, made up with water, and when the envelope was nearly full a 5% solution was run in. The limb was immersed for twenty minutes or until pain was complained of. The irrigation was repeated two or three times daily. It has been found that the average life of a bag is two to three weeks, after which leaks appear. The application of a fresh envelope is often helpful, since it gives an opportunity for light mechanical cleaning of the burnt area, the removal of infected mucus with sterile gauze, and, in the case of deep burns, the removal of necrotic areas of tissue with scissors and forceps.

Sulphanilamide and Tulle Gras.—The cleansed area was thickly covered with sulphanilamide powder and tulle gras was stretched firmly over it in overlapping strips. A fresh application of powder was then made, and several layers of gauze superimposed and lightly held in position with a bandage or face-mask. The next day the gauze was usually moist with exuded serum. It was then removed and fresh powder applied to the tulle gras, followed by clean gauze. This is not necessary in every case, but the dressing should always be removed down to the tulle gras on the fourth day, as otherwise small areas of sepsis may be found to have developed unnoticed. If septic areas were seen the tulle gras over them was removed, they were swabbed with antiseptic solution, and fresh powder and tulle gras applied. In the case of uninfected superficial burns the tulle gras was removed after from five to seven days, when healing had occurred.

Tannic Acid and Triple Dye.—Tannic acid was used in a strength of 15 or 20%, being painted with a brush or sprayed on to the burnt areas after cleaning. Triple dye was applied with a brush. These processes were repeated until a firm crust had formed, when the tanned areas were left exposed to the air so far as was possible.

Depth of Burn.—In our experience the exact estimation of the depth of burning is very difficult to determine, since burnt areas are rarely involved to an equal extent over their whole surface. Moreover, what appears to be a superficial burn at the time of cleaning may subsequently prove to be much more severe owing to coagulation of protein in the deeper layers of skin. It is, however, easy after some days to distinguish surface burns which are superficial enough to allow regeneration of skin to take place from below, and deep burns in which the epidermis has been totally destroyed, so that regeneration can occur only by ingrowth from the healthy skin surrounding the burnt area. A surface burn, even if only of second degree, may, however, be converted to a deep burn as the result of sepsis, and must then be regarded as "a secondary deep burn."

The results of treatment are therefore arranged under three headings—superficial burns (first, second, and third degree), deep burns (fourth and fifth degree), and secondary deep burns. We have records of 19 cases treated by various methods since October, 1940. Of these, 17 were originally superficial; 4, however, subsequently became infected, and are classed as secondary deep burns. One patient had superficial burns of the face and right hand and deep burns of the left forearm and hand, and his case is classified under both superficial and deep burns. There were thus three primary deep burns. Superficial burns were left to heal naturally by re-epithelization; but the treatment of deep burns, whether primary or secondary, was directed towards obtaining a clean surface suitable for skin grafting at the earliest possible moment. That inefficient treatment of superficial burns may, as the result of infection, lead to gross scarring and perhaps the development of a useless limb is well known, but cannot be stressed too much.

In comparing the progress of burns on two limbs treated by different methods it must be remembered that the more extensively burnt limb is also, as a rule, rather more deeply burnt. When hands and face are burnt while extinguishing an incendiary bomb the face is almost always less severely affected than the hands. Moreover, the face, except for the ears, tends to heal rapidly owing to its good blood supply, while the dorsum of the hand or foot, where the skin is only loosely attached to the underlying tissues and where the blood supply is poor, takes relatively longer. In addition, where the skin is thick, as in the palm of the hand, the depth of the burn will be relatively less than where it is thinner, as on the dorsum.

Superficial Burns

Of the 13 cases under this heading, the burns in 8 were acquired while dealing with incendiary bombs, 2 were due to an explosion in a gas oven, and 3 were caused by scalding with boiling water. Eight cases with burns of the face were treated with sulphanilamide and tulle gras, and these were healed within five to fourteen days, with one exception. This man developed a mild but persistent infection of the forehead and required sixty-four days before healing was complete. Eight limbs were treated in the irrigation envelope, and required from nine to thirty-two days for healing; extensively burnt hands—one of which was completely "degloved"; and two almost completely—took twenty-one, twenty-two, and twenty-three days to heal. Sulphanilamide and tulle gras were used on ten limbs that were less extensively burnt, and the time required for healing varied from twelve to twenty-eight days. Tannic acid or triple dye was employed on small areas in three cases, which required fifteen, seventeen, and thirty days before healing was complete. In addition, tannic acid was used in three of the cases of more extensive superficial burns, all of which became badly infected; these are further discussed under the heading of "Secondary Deep Burns." Details of the progress of selected cases are as follows:

Case 1.—A woman aged 29 was admitted on December 27, 1940, having received superficial burns on the right side of the face and anterior aspects of both legs from the effects of an explosive incendiary bomb. The blistered area on the right leg extended from just below the knee to the dorsum of the foot and covered an area roughly twice that of the left. There were no signs of shock. The burnt areas were cleaned under an anaesthetic and the blistered skin removed. The face, which was denuded from the nose to the left pinna, including the forehead on that side, was dressed with sulphanilamide and tulle gras. The right leg was placed in an irrigation envelope and the left was treated with 15% tannic acid. During the next two days some pain was felt in the tanned leg and the skin was sore to the touch around the tanned area. No pain was felt in the face or right leg. When the tulle gras was removed from the face on the seventh day the underlying skin had completely healed. On the tenth day the irrigation envelope was removed and new epithelium was found to have covered the burnt area. The tan was still adherent to the left leg and could not be removed until January 29, 1941, nearly five weeks after its application. (Figs. 1 and 2.)

This case shows well how even when tannic acid is applied to a small superficial burn, and when no subsequent infection develops, the time taken before epithelization is complete under the tanned area is considerably longer than for a larger area on the opposite limb treated in the irrigation envelope. If, in addition, a surface overlying a joint is affected the immobility enforced by the tannic splint must greatly delay recovery of function.

FIG. 1.—Case 1. Showing complete healing of superficial burn on right leg after nine days' treatment in irrigation envelope. Tan is still adherent to smaller burnt area on left leg: this did not separate for nearly five weeks.

FIG. 2.—Case 1.

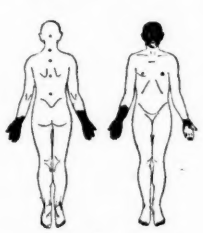


FIG. 3.—Case 5.

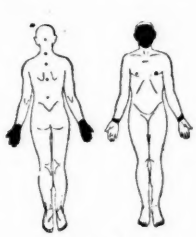


FIG. 4.—Case 8.

Case 5.—A man aged 44 was admitted on December 8, 1940, with burns from an incendiary bomb involving the entire face and both hands and forearms (Fig. 3). There was complete "degloving" of the right hand, leaving a bleeding surface; the left hand was less extensively burnt. He was anaesthetized and the burnt area cleaned within five hours of admission; the face was treated with sulphanilamide powder and tulle gras, the right arm with an irrigation envelope, and the left hand with strips of lint soaked in 2% sodium bicarbonate. He subsequently suffered from shock and required a litre of plasma, given intravenously. Four days later both hands were forming new epithelium, especially the palmar aspect of the hand enclosed in the bag, but this hand was more oedematous than the left. There was no pain in either hand. Cultures taken at this time showed a scanty infection of the left hand with Gram-positive cocci and bacilli, while exudate from the bag grew *Staph. aureus* and haemolytic streptococci. The face was still oedematous. Nine days after admission the face was healed except for one or two scabs round the hair margin; the left hand had become sodden and was dressed with sulphanilamide and tulle gras. After fourteen days the bag was removed from the right arm and the burnt area was found to be almost entirely covered with epithelium except for the flexor creases of the fingers and an area on the back of the hand. Movement was limited by oedema. A new bag was now applied. After sixteen days the left hand was healed except for small areas on the dorsum of the distal phalanges of the third and fourth fingers; movements were almost full. Three weeks after admission the bag was finally removed from the right arm, which had healed. Movements of both hands were good but not yet full. When seen three months later both hands had full movement and power and were covered with healthy skin except for a small area with early keloid changes on the ulnar border of the left hand and on the right wrist.

The rapid healing of the extensively burnt right hand in the irrigation envelope, in spite of moderate infection, is noteworthy.

Case 8.—A youth aged 19, admitted on March 8, 1941. This patient was burnt as the result of an explosion occurring in a gas oven. The skin over the face and of both hands and wrists was blistered (Fig. 4). The loose skin was removed under anaesthesia, the face was treated with sulphanilamide and tulle gras, and both hands were fitted with irrigation envelopes. After nine days the bags were removed and the burnt areas on both hands were seen to be covered with a layer of mucopurulent exudate. On culture, *Staph. aureus* was grown. There was some oedema, preventing full flexion of the fingers, and in all respects no obvious difference between the two hands was observed. A fresh irrigation envelope was now applied to the left hand, while the right was dressed with sulphanilamide and tulle gras, leaving the ends of the fingers and thumb exposed. From now on this hand was used for feeding and other minor activities. It was next dressed on March 20, twelve days after admission, and was then healed except for a small area on the dorsum. The left hand, in the irrigation envelope, was more oedematous and had not reached such an advanced stage of healing. On March 30, three weeks after the injury, the right hand was quite healed, and when the left was removed from the bag there was an extensive scab over the dorsum that did not separate until thirty-two days after the injury.

Although both hands were at first treated identically, after a week direct comparison was made between sulphanilamide and tulle gras and the irrigation envelope. In this case there was no doubt that more rapid progress was made with the former method, although both were satisfactory. From the moment the right hand was dressed, leaving the finger-tips exposed, the patient began to use it, whereas, in spite of frequent encouragement, the hand enclosed in the irrigation envelope was left passive except during irrigations. To this the rapid subsidence of the oedema of the right hand is attributed. Moreover, while only three dressings weekly were required for the hand treated with sulphanilamide and tulle gras, thrice-daily irrigations were necessary for the hand enclosed in the irrigation envelope.

Deep Burns

Two of these 3 patients were burnt in coal fires—one following an epileptic fit, the other after the destruction of her house by a bomb. The third case was due to explosion in a gas oven. All 3 had severe burns of one upper limb, including the hand in 2 cases. They were treated in irrigation envelopes until necrotic tissue had separated sufficiently to allow grafting to be carried out. The time necessary for this was forty, fifty, and twenty-eight days respectively. The epileptic patient also had deep burns of the face and breast; these were treated with tannic acid 20% and triple dye. Infection of these areas developed, necessitating painful daily dressings, which were in marked contrast with the painless treatment of the equally burnt area in the irrigation envelope. The bomb victim had a circular burn around the forearm and involving the palm of the hand—the skin and subcutaneous tissues were destroyed, exposing muscle tissue and the radius. Case 9, in which there were superficial burns of the face and right hand (Fig. 5), was ready for grafting after twenty-five days,

but the development of a sore throat caused this to be delayed.

Case 9.—A man aged 23 was admitted on March 8, 1941. He was involved in the same accident as Case 8, but was nearer the oven and was more seriously burnt. He was considerably shocked and required plasma transfusions. His face was treated with sulphanilamide and tulle gras, and both arms were placed in irrigation envelopes. The left was much more extensively burnt than the right. After cleansing and removing burnt skin there was no apparent difference in the depth of the burns on the two hands, but in the course of the first week it became evident that the left hand and arm were burnt more deeply than the right. Whereas re-epithelization of the latter began

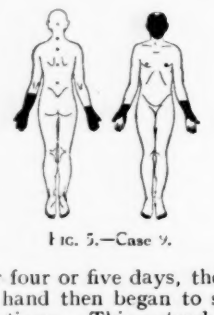


FIG. 5.—Case 9.

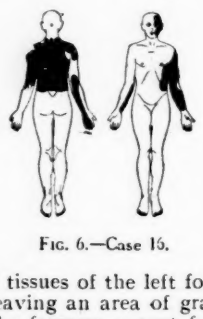


FIG. 6.—Case 16.

after four or five days, the epithelial tissues of the left forearm and hand then began to separate, leaving an area of granulation tissue. This extended round the forearm except for one area of unburnt skin beneath the wrist-watch and its strap, and involved the dorsum of the hand. Two weeks after admission the right hand was healing well, but necrotic skin was still separating from the left forearm. Twenty-three days after admission the right hand had healed except for an area the size of a sixpence over the fourth metacarpo-phalangeal joint. The left arm and hand showed some growth of new skin, especially on the palmar and ulnar edges of the hand and fingers, but most of the burnt area presented a raw granulating surface. Sulphanilamide and tulle gras were now applied to this limb, and twelve days later Thiersch grafting of both aspects of the forearm and the dorsum of the hand was successfully carried out (E. E. L.).

This case demonstrates the early difficulty in determining the depth of the tissue damaged by burning. The irrigation of the more deeply burnt limb in the envelope was valuable in assisting the separation of the necrotic skin and preparing a suitable surface for grafting.

Secondary Deep Burns

Two of these patients were burnt through the explosion of an oil bomb, one from a scald, and one in a manner unknown. Tan or triple dye had been used as the initial treatment in three of them. In one case the skin was blistered but not broken. This was removed and triple dye applied directly without further preliminary cleansing. The tanned area became infected, and was eventually grafted after thirty days (E. E. L.). The fourth case was admitted with superficial burns of the face, both forearms and hands, and the anterior aspects of the legs, due to the explosion of an oil bomb. These areas were cleaned with saline without an anaesthetic and dressed with foille and later with eusol and saline compresses. The legs were healed in seven weeks, and the face and arms in from eight to ten weeks, areas on the forehead and left elbow having been grafted a month after admission. The slow progress in this and the preceding case was almost certainly due in part to the inefficient initial cleansing. The history of Case 16, the most extensively burnt case in the series, is as follows:

Case 16.—A boy aged 14 was admitted on October 15, 1940, with extensive burns involving the back from neck to wrist, the left arm to the wrist, the right forearm and hand, and part of the left side of the face, as the result of the explosion of an oil bomb (Fig. 6). The skin of the back was severely blistered, but the burns nowhere appeared to be more than third degree. He was at first very little shocked, and cleansing under anæsthesia was carried out two and a half hours after the injury. 20% tannic acid was applied. Later in the day the blood pressure dropped to 85/65 and over two litres of plasma was given intravenously. In the course of the next week sepsis developed under the tan on the back and on the left arm, and the tan itself began to strip off, being removed piecemeal. The temperature rose to 103° at night, and the pulse rate varied between 105 and 130. Eusol dressings were applied; but their removal was extremely painful, and more than two hours was spent over each dressing. Immersion in a saline bath was attempted, but this led to exhaustion and to an increase in temperature. Early in November liquid paraffin and brilliant green 1% were applied, and the burnt area of the back was left exposed to the air. This was followed by some improvement, and epithelization occurred over the centre of the back and the upper part of the shoulders. The rest of the back was covered with infected crusts, and the left arm and flank were painful and heavily infected. The temperature still rose to 100° at night, and the pulse rate varied between 120 and 130. The face and left arm where the tan had not been disturbed by sepsis were now healed except for the edge of the left pinna. At this stage (November 10) an irrigation envelope was applied and thrice-daily washings with dilutions of electrolytic hypochlorite solution (milton) were carried out. Considerable pain was experienced when the strength of this solution exceeded 1%, and it was therefore kept below this. During the first week the infected area became cleaner, epithelium spread in from the healthy skin edges, and numerous small islands of epithelium appeared in the middle of the raw areas. After a week the condition became stationary and then began to retrogress, the new skin becoming absorbed, the raw areas being bathed in pus an hour or two after each wash. The general condition was unaltered. On December 4 the bag was removed, the infected areas were washed for twenty minutes with 10% milton solution under gas-and-oxygen anaesthesia, and a fresh bag was applied. From this time healing continued favourably. A maximum final strength of from 2½ to 4% milton solution was reached in the bag at each wash. This was definitely painful, but seemed to cause no more pain than 1% had previously. Progress was accompanied by an improvement in general health, the temperature falling to a maximum of 99° and the pulse rate to the neighbourhood of 100. By January, 1941, the back had become largely epithelized, but there were fresh signs of reabsorption in some areas. The envelope was therefore removed and tulle gras and sulphanilamide powder were applied. The condition improved, epithelization continued, and on January 24 areas on the left arm and shoulder were grafted (Thiersch and pinch grafts—E. E. L.). On January 30 the grafts were found to have taken well, but there was some infection of the ungrafted granulation tissue of the left flank. Diphtheroids, *Staph. albus*, and *Staph. aureus* were grown on culture. In spite of repeated applications of sulphanilamide and tulle gras the infection spread, and large areas of newly formed skin broke down. Raw areas varying in size from a sixpence to a half-crown developed on both sides of the back. In spite of various antiseptic dressings it appeared as though the whole burnt area would shortly be involved and all the new skin reabsorbed. On February 17 the back was washed with 10% electrolytic hypochlorite solution (milton) in water under anaesthesia and a fresh irrigation envelope was applied. Within two days the temperature, which had risen again to 100° at night, fell, and the pulse rate dropped from 100 to 80. Rapid re-epithelization took place. This continued until March 11, when the bag was again removed, sulphanilamide and tulle gras were applied to the remaining raw area of the left arm and back, and new Thiersch skin grafts were made. These again took well, and by mid-April the back was healed except for a few small areas. Complete healing had occurred early in May.

This case reveals a number of important points. While it is possible that the original application of tannic acid to the extensive burnt area actually saved this boy's life by diminishing the absorption of toxic products, the subsequent infection beneath the tan reveals one of the disadvantages of this form of treatment. During this time what had originally been a superficial burn was converted into an infected area involving the entire depth of most of the epithelium. The use of the irrigation envelope was at first followed by striking improvement in the local condition, great relief of pain for the patient, and considerable time-saving for the nursing staff. The improvement was not maintained, probably owing to the great dilution of hypochlorite used in the wash-outs. Further cleaning with stronger antiseptic and the use of a higher concentration of hypochlorite for the irrigations led to the re-establishment of progress locally and marked improvement in the general condition. Even so, however, organisms (*B. pyocyaneus* and *B. coli*) which were apparently " fast ' to hypochlorite

eventually gained ascendancy and reabsorption again occurred. A change over to sulphanilamide and tulle gras was at once followed by improvement, but again organisms (*Staph. aureus*, *Staph. albus*, and diphtheroids) "fast" to sulphanilamide became established after some weeks, leading once more to retrogression. This was halted by reverting to the use of the irrigation envelope and hypochlorite. After the first few days this patient always complained of pain, often severe, during and for some minutes after irrigation.

It is probable that in a case of this type with an extensive, deep, and infected burnt area inevitably requiring some months for recovery, no single method of treatment would have been effective. A change was essential from time to time, and the most rapid progress was noticed to take place always during the two weeks immediately after such a change, whether it was due to hypochlorite or sulphanilamide; this was followed by a period of slower improvement, and then by definite retrogression. The use of the irrigation envelope in this very difficult case contributed materially to ultimate recovery.

Bacteriology

Irrigation Envelope.—Infection of the burnt area was always present to a variable extent, and even prolonged contact with 5% electrolytic hypochlorite solution was not sufficient to abolish it. Thus in one case swabs taken from the burnt area after the initial cleansing were sterile. Three days later occasional Gram-positive cocci were seen in a smear, and scanty colonies of *Staph. aureus* and haemolytic streptococci were grown on culture. Four days afterwards coliform organisms were also present. Smears from the leg of Case 1, taken three days after admission, showed leucocytes but no organisms: on culture *Staph. albus*, diphtheroid organisms, and *B. subtilis* were grown. In another case purulent exudate always collected in the bag overnight, and haemolytic streptococci and *Staph. aureus* were found a week after its application; a fortnight later haemolytic streptococci and *B. pyocyaneus* were grown, and a culture taken when the bag was finally removed before skin grafting, six weeks after admission, showed a heavy growth of *Staph. aureus*, *B. pyocyaneus*, and *B. proteus*. The difficulty of abolishing an established infection was further shown in Case 16, in which absorption of newly formed skin was observed to be taking place two weeks after the bag was first applied: about half a pint of pus was then collecting in the bag overnight. Smears showed a moderate concentration of organisms, and on culture haemolytic streptococci, diphtheroids, and *B. proteus* were grown. The bag was removed on December 4 and the back and arms were washed with 10% hypochlorite solution for twenty minutes. At the end of this time they appeared clean, and there were numerous capillary haemorrhages on the granulating surfaces. During the next five days three washings daily with 2½ and 3½% hypochlorite solution were carried out. On December 9 there was no significant reduction in the number of organisms, and *B. proteus*, diphtheroids, and *Staph. aureus*, with occasional colonies of haemolytic streptococci, were cultured.

Sulphanilamide and Tulle Gras.—When sulphanilamide powder and tulle gras dressings have been applied to a well-cleaned surface, infection has been minimal but has not always been prevented. Thus in Case 5 a smear taken from the face five days after admission showed a moderate infection with organisms of the *B. coli* group, *Staph. albus*, and diphtheroids. Again, a swab from the back of Case 16 taken a week after the removal of the bag, during which sulphanilamide and tulle gras had been applied, showed a sparse growth of *B. coli*; after three weeks *Staph. aureus*, *Staph. albus*, and diphtheroids were cultured. In other cases *Staph. aureus*, *Staph. albus*, and *M. tetragenus* have been cultured and proved resistant to further treatment with sulphanilamide. Both methods appear to limit infection, but with each of them, when infection becomes established, a change in the treatment is necessary to control it. Streptococci, diphtheroids, and *B. coli* were commonly grown from patients treated with hypochlorite solution, and staphylococci from those with sulphanilamide. Whichever method is employed the initial cleansing of the burn is of great importance.

Pain

Treatment with the irrigation envelope has been relatively painless. The majority of patients have had no pain throughout and have been able to tolerate irrigation with a mixture containing up to 1 oz. of electrolytic hypochlorite solution to the pint of water (5%) without more than a slight tingling. In some cases, however, pain has been complained of. This may occur during or after irrigation. In Case 16 a concentration of electrolytic hypochlorite solution of more than four ounces to twenty pints of water (1%) caused pain throughout treatment. Two other patients with burns on the hands also complained of pain during irrigation with 2½% solution; in one of these there was considerable oedema of the arm, probably due to too firm an application of the adhesive attachment, which was considered to be partly responsible. In the other no obvious cause was discovered, but it was subsequently found that half-strength eusol dressings were equally painful. In one case, although irrigation could be carried out painlessly with 5% solution, severe pain developed in the burnt area from half an hour to one hour after the irrigation was over. This ceased after three or four days of treatment. Treatment with sulphanilamide and tulle gras has been almost entirely painless.

Conclusion

Two new methods of treatment of burns have been investigated and both have been found to possess advantages over older methods. For superficial burns of the face or limbs the use of sulphanilamide and tulle gras has been especially successful, and rapid healing, with good function, has resulted. In some cases, however, infection, usually with staphylococci, has supervened, necessitating a change of antiseptic. This treatment is almost painless, and in many cases need only be carried out every few days. It is the most practical and efficient method for routine use in superficial burns of moderate extent. The irrigation envelope is useful for more extensive burns, and for deep burns in which separation of necrotic tissue must take place before grafting is possible. The burnt area can be readily inspected, and free and painless movement of limbs, fingers, etc., can be carried out during irrigation. The treatment is not always painless, and infection is controlled less well than with sulphanilamide. The application of the adhesive seal round the limb may increase the oedema of the burnt parts unless great care is taken. In some cases a change from one method to the other has been used with success. The irrigation envelope offers an alternative treatment of value in special cases. Both methods possess advantages over tan treatments: first, infection can always be limited and never develops to the same extent as often happens under an area of tan; secondly, the splinting effect of tan, with its harmful effects on the immobilized joints, is avoided. Nevertheless, in widespread burns of the trunk tanning methods may save life in the early stages.

Our thanks are due to Dr. R. D. Clay, who was responsible for all the bacteriological investigations.

REFERENCES

Bunyan, J. (1940). *Proc. roy. Soc. Med.*, **34**, 65.
Matthews, D. N. (1941). *Lancet*, **1**, 43.

TREATMENT OF BURNS BY ENVELOPE IRRIGATION

BY

JOHN W. HANNAY, F.R.C.S.Ed.

Surgeon, E.M.S.

While no single method for the local treatment of burns has been found universally satisfactory and acceptable, the technique described by Bunyan (1940) of sealing the affected part in a coated silk envelope and irrigating with electrolytic sodium hypochlorite merits a thorough and critical trial. In the past six months 16 cases have been treated by this means at the London Hospital and 8 by other methods. Two were caused by electricity; the rest were due to the commoner agents encountered in civil practice and to wartime incendiary bombs. When the burns were multiple, as was often the case, different methods were used on the separate lesions and comparisons made between them.

The two main problems in the local treatment of any burn are the prevention of infection and the prevention of pain. The latter is largely a matter of controlling the former. If infection is prevented a superficial burn will heal satisfactorily by any method and a deep burn will be the sooner ready for the essential skin graft. Though descriptions of cases and their treatment glibly describe the degree of a burn, I have only once seen mentioned the difficulty presented by this assessment (Mowlem, 1941). It is often impossible to decide on the depth of injury at different sites of the lesion for several days, when it is frequently seen that original estimates were incorrect.

In general, large superficial areas heal more slowly than small deep ones, and the time required for the last few areas to heal, especially over the dorsum of finger-joints, is most tiresome. Many cases after a time advance extremely slowly, and a change of treatment is required to hasten progress. Healing is usually most rapid on the face, less so on the upper extremity, less still on the lower extremity, and slowest of all on the dependent flexor aspects, notably behind the knee. It is more rapid in the young than in the old, and in women's faces than in men's, where the growth of beard may lead to considerable discomfort and delay. It is particularly necessary to shave the scalp if forehead lesions are anywhere near the hair margin. The only delayed healing of a face burn was due to this omission.

Theatre toilet, though universally accepted in principle as essential, seems to be regarded as of less importance in practice; especially is this so in burns of moderate degree and extent, which are treated in out-patient departments. This is a great mistake, for one night spent in hospital following an efficient cleansing under anaesthesia may save many visits later as an out-patient. A stoker with burns of face and hand caused by his furnace "blowing back" was treated as an in-patient with no theatre toilet. A few days after he left hospital his substitute was admitted with almost identical burns from the same faulty furnace. With similar treatment, following cleansing under anaesthesia, he left hospital healed in two-thirds of the time.

Lastly, how does one honestly maintain "full aseptic precautions" in cleaning up a burn in the theatre, especially an air-raid casualty?

Technique of Bunyan - Stannard Envelope Method

The principle consists in enclosing the affected part in a transparent coated silk envelope, irrigating with electrolytic sodium hypochlorite three times daily through vents provided, and using the envelope* as the only dressing between irrigations.

Numerous modifications and improvements have been made since the method was first used to overcome various difficulties as they arose. A case of burns of the hand, wrist, and forearm is now treated in this hospital as follows:

When any necessary treatment for shock has been given the patient is anaesthetized in the theatre. An assistant first washes and swabs away loose debris with normal saline and rests the limb on a sterile towel. The surgeon, prepared as for an operation, "with full aseptic precautions," next cuts away with scissors any blistered areas and removes with forceps such injured tissue as can be removed with a minimum of force. No scrubbing is employed, as it adds further trauma to already damaged tissues. The limb is then suspended freely over a bucket and hosed or syringed with a 20% solution in tap-water of "milton" at 105° F. for 10 to 15 minutes, until thoroughly clean.* A suitable-sized envelope is then drawn over the limb, and the upper open end sealed well above the limit of the lesion by two overlapping turns of special webbed adhesive strapping. Variban has been substituted here when the recommended strapping was unavailable, but is less satisfactory. The patient is then returned to the ward.

About six hours later the first irrigation is given in the ward. The limb is supported on a mackintosh pillow so that the elbow is higher than the hand. The lowest vent of the envelope is doubled over on itself and closed with a special clip. As a substitute a spring-backed paper-clip with edges guarded by slit rubber tubing works admirably. For added security to the seal a rubber ribbon is tied firmly around the envelope just distal to the strapping. From a large container with delivery tube and glass nozzle, 2½% milton—i.e., 1/2 oz. milton to 1 pint of tap water—at 105° F. is directed through the upper vent into the envelope and over the lesion. When the envelope is sufficiently filled to cover the lesion completely the upper vent is doubled over and clipped. The patient is then encouraged to move his fingers and wrist in the fluid for three to five minutes, before the fluid is drained into a bucket by releasing the lower clip. The process is now repeated once, and the complete performance takes about twenty minutes. After the second emptying the rubber ribbon is untied and the limb must hang down, with all vents open, to drain for twenty minutes. The process is repeated the following morning with 2½%, but thereafter 5% milton is used thrice daily.

Provided a rubber ribbon is tied below the seal during irrigation to take the hydraulic pressure, the more elaborate methods of sealing first used are quite unnecessary. In one case no seal at all was employed, the envelope being held in place between irrigations by a piece of tape tied around the limb, and this proved both satisfactory and comfortable.

For the first case treated here—in a home-made envelope which leaked—normal saline was used. Considerable oedema persisted, and the burn and surrounding healthy tissue became increasingly macerated. After a week milton was substituted, and the oedema disappeared in two days. The maceration followed less rapidly.

This maceration did develop, however, especially of the cornified palms of labourers, in subsequent cases when using milton. It is now almost completely overcome by adequate postural drainage after each irrigation and by leaving all vents open between-whiles. Although this latter theoretically admits secondary infection, which the envelope method was designed to occlude, in practice it does not seem to occur. If a tendency to maceration is still found, resting the limb on hot-water bottles to increase evaporation will almost certainly overcome it. This has not been necessary here since the early cases. The distension of the envelope with oxygen after each irrigation to prevent maceration was suggested, but it did not seem to be of any value, and, in any case, attention to drainage is all that is usually required.

If the lesion is thoroughly hosed with 20% solution at the initial cleansing a degree of anaesthesia appears to be produced. After the first early morning one, using 2½%, subsequent irrigations with 5% do not give rise to any complaints. Though a few say it stings—and this stinging

* These envelopes, made for different parts of the body in a variety of shapes and sizes, may be obtained from William Stannard & Co., Leek, Staffs.

* Milton is an electrolytically prepared solution of sodium hypochlorite, stabilized at 1%.

sometimes begins even half an hour after irrigation—the majority of patients welcome the procedure as painless and comforting.

An electrolytically prepared hypochlorite was chosen, as saline remains after the liberation of its nascent chlorine; whereas chemically prepared varieties, such as eusol or Dakin's solution, have more irritant end-products. Milton was thus used, as it filled requirements, and was supplied to hospitals at the special price of 3s. 6d. to 5s. a gallon, according to quantity. However, since the first few cases, when milton was used, the hypochlorite employed has been prepared electrolytically in the hospital dispensary. With an apparatus made entirely by the chief dispenser, Mr. C. H. Sykes, a 1% solution of electrolytic sodium hypochlorite is prepared by switching on the current and switching it off when a bell rings. This has been found to remain completely stable after six months, and is diluted in the theatre or ward to the strength required. The cost is about 6d. a gallon. The only further essential is the non-interference by enemy action with the electric supply.

The initial disadvantage of leakage and wetting of the bed through an imperfect seal has disappeared since using a rubber ribbon; but, at seams especially, and also by permeation through the envelope, a certain amount of fluid still gets through. In a "good" envelope this may not start for nearly three weeks, but sometimes it begins as early as the fifth day. It is quite controllable by a mackintosh sheet under the part, but when the fault is eliminated by technical improvement in manufacture the method becomes entirely free from "mess"—except perhaps in the theatre at the initial cleaning. (I believe this difficulty, due mainly to delay in obtaining materials, has now been overcome.)

When filling an envelope enclosing a leg, the lower part is bellied out by the entering fluid, which draws the upper part painfully tight across the limb until raised off it by the envelope's becoming completely filled. If a length of Gooch splinting is placed beneath the limb and the free edges are drawn up on either side and suspended from a bed cradle, a trough is formed outside the envelope which prevents this.

With an extensive deep burn, progress becomes delayed after a time—as with many chronic conditions. This time of delay presumably varies with individuals; sufficient long-standing cases, however, have not been treated to do more than suggest that, with the envelope method, the first four to six weeks is the period of most rapid improvement. If, when envelopes are changed on account of leaking, the lesion is again hosed down with 20% solution, healing appears to be accelerated.

Only limb burns have been treated here by this method, though a case is still being awaited which can be enclosed in an envelope extending from breasts to mid-thighs and allowing easy use of a bed-pan by an ingenious gusset. It has so far only been successfully fitted and filled on an uncomplaining student.

A few cases of infection have been treated, but these are not discussed in this paper.

Comment on the Method

Infection.—As bacteriological controls here have been so incomplete, the subject of infection can only be discussed clinically—i.e., when granulations are pale pink and no pus is present, infection is assumed to have subsided or not to have occurred, as the case may be; though cultures from the surface would almost certainly show organisms. In not a single case treated from the onset by the envelope method has severe infection occurred. With a theatre toilet it has been subclinical; without this cleansing it was only slight, and rapidly subsided. This is a very important advantage; for whereas with any other method preliminary cleansing in the theatre is essential, with an envelope the healing time is not so disastrously prolonged if this still highly desirable cleansing has to be omitted. And in certain circumstances this omission may be inevitable. Where infection is already present an envelope is the most satisfactory method of cleansing. Repeated dressings of any nature should be done not less often than two-hourly—which is very time-consuming, and is disturbing to the patient—or they stick, and their removal is painful and destructive. This can be avoided by covering with tulle gras; but cleansing is then very much delayed, as the gaps in the mesh soon became blocked by exudate. Hypochlorite compresses clean more rapidly than saline, which produces maceration by the tenth day at the latest. This is the great disadvantage of the saline bath. The envelope sticks not at all or very slightly, is the least painful method, thrice-daily irrigations are adequate, and progress can easily be watched without disturbing the lesion or the patient.

Pain.—This is virtually absent. After the first early morning irrigation patients seldom mention more than a slight stinging. This is rather the exception, and has not persisted for more than a day or two. In three cases in which both hands were burnt, one was treated with an envelope, the other by ointment dressings—and in each instance preference was volunteered for the envelope.

A patient treated by Mr. Alan Perry had the whole of his hand coagulated by a severe electric burn. It was enclosed in an envelope and irrigated for thirteen weeks, four envelopes in all being used. During this time part of the palm and all the digits except the little finger sloughed away, but after the first few days there was no complaint of pain or any sign of secondary haemorrhage.

A girl aged 16, whose nerve had completely gone following burns of both lower limbs from thighs to feet, was treated by triple dye jelly. Despite initial theatre cleansing, one leg and then the other became infected, and although this was suspected—even leading to re-examination under anaesthesia on the fourth day, when no pus was found—it was not until the ninth day that the pellicle showed definite signs of infection beneath. From then onwards the whole areas of both legs became infected. One was treated in an envelope, the other with milton compresses over tulle gras. The patient became almost unmanageable, and begged for the second leg to be enveloped. After this had been done she settled down in a few days, and took the greatest interest in watching the progress of her condition through the transparent envelopes.

There is no doubt that patients have preferred the envelope to any other method used on them—though, with a number in a ward at once, mass suggestion certainly plays a part. The only real complaints have been of soreness from the strapping seal.

Use.—This is a further great advantage in treating hands. From the second day they can be used, painlessly, for coarse movements through the envelope, such as feeding, holding a book, or doing the hair. For superficial burns of the hands no movement should be lost. For deeper burns the patient continues to move the hand while waiting for sloughs to separate—at first only in the fluid, but in a few days at all times. Where loss of tissue—e.g., tendons—means inevitable impairment, movement of course suffers; but otherwise, movement never having been lost, the tedious process of regaining it does not arise. The only disadvantage of using the hands too enthusiastically would appear to be the earlier leaking of the envelope.

Nursing.—The staff are saved a great deal of time if several cases are being treated by the envelope method. One preparation does for all, and there is no scrubbing up between cases. While one patient is moving the fluid over his lesion the envelope of the next is being filled. With a solitary case, rather less time and preparation are involved in "dressing" the burn.

Cost.—This depends on the size of the area to be treated, as the larger this is the larger the envelope and the more solution required. For an arm, however, the hypochlorite as prepared in our hospital dispensary would cost 3½d. a day. To that is added the cost of the envelopes: no other dressings are required.

Analysis

The 24 cases involved 51 areas; these were treated as follows:

(a) *Ointment dressings* were used only for clean burns. If an area of infection developed it was quickly controlled by compresses, before it became deep or extensive. All faces except one were dealt with by this method, and 14 cases in all.

(b) *Saline Compresses.*—This method was used in 8 cases, one of which, a burnt face, healed satisfactorily in nine days. In all the others it had to be abandoned, as maceration became too marked. The method is, however, useful for a few days to clear up a limited area of infection.

(c) *Electrolytic sodium hypochlorite compresses* in solutions varying from 5 to 50% were found more effective than saline in treating infected areas, of which 7 were encountered.

(d) *Flavine in paraffin* was used in only 3 cases. It appears to have little advantage over ointment for a clean burn, and is more messy.

(e) *Triple dye jelly* was applied to 6 areas after careful cleansing under anaesthesia. In every single case almost the whole area covered became infected, superficial burns became deep, and weeks were required to heal. One needed a skin graft and another may do so. Even if perfect healing had occurred, the method was messy.

(f) *Envelope Irrigation.*—This was employed on 13 burns from the start and on 8 after infection had supervened.

Summary and Conclusions

Treatment of burns by envelope irrigation with electrolytic sodium hypochlorite has been tried in 16 cases, and the results are compared with those in 8 cases treated by other methods.

When thorough surgical technique is impossible the envelope method will minimize the dangers of infection; and when infection is already present no other method will clean the wound so rapidly or so effectively. By its use treatment is almost painless—an advantage especially noticeable in infected cases. The method is cheap and convenient, making nursing simple.

Other methods will heal a burn or bring it to the stage of grafting within comparable degrees of time, attention, and discomfort, provided all goes well. The great value of envelope irrigation is that one can be quite certain that in no case treated by it, with or without theatre cleansing, will anything more than mild infection occur. Can this be claimed for any other method?

I should like to thank Mr. Neligan, Mr. Perry, and Mr. Dix for permission to publish these cases, and to record my appreciation of the enthusiasm shown by the nursing staff despite early difficulties.

REFERENCES

Bunyan, J. (1940). *Proc. roy. Soc. Med.*, **34**, 65.
Mowlem, R. (1941). *British Medical Journal*, **1**, 686.

The Biochemical Society would like to give any possible assistance to foreign visitors to this country who are interested in biochemistry. The following notice, published in the last programme of the Society, may be of interest: "On behalf of the Society the Committee wish to extend a cordial invitation to biochemists and others interested in biochemistry, from the British Empire and countries abroad, to attend meetings and to take part in the discussion of papers. If such visitors wish to receive programmes of the meetings and advance abstracts of papers, they should send their names and addresses to the Secretaries." The Secretaries of the Biochemical Society are: Dr. F. G. Young, National Institute for Medical Research, London, N.W.3, and Dr. W. T. J. Morgan, Lister Institute of Preventive Medicine, Chelsea Bridge Road, S.W.1.

MUMPS MENINGO-ENCEPHALITIS

BY

A. W. FRANKLAND, B.M., B.Ch.

Captain, R.A.M.C.

In a recent epidemic of mumps among soldiers 234 cases were treated in hospital. For the most part only the more severe cases were seen, the milder ones obtaining treatment in their own camps. In a mumps epidemic with meningeal symptoms, coming as it did at the end of a severe epidemic of meningococcal meningitis, it was not surprising that quite a few patients with mumps were sent into hospital with meningitis as the tentative diagnosis. In only 5 of these cases were the symptoms severe enough to justify lumbar puncture. In all these cases a pleocytosis was obtained in the cerebrospinal fluid. Many more cases were sent in for lumbar puncture, but the diagnosis rested largely on the recognition that such a symptom can occur. It was soon apparent that it was not necessary to have either parotitis or orchitis: the meningeal symptoms in contact cases of mumps could be presumed to be due to the mumps infection.

That meningeal involvement occurred fairly often in a mumps epidemic has been known since the middle of the eighteenth century, but it was not until 1902 that Monod described the findings in the cerebrospinal fluid. Gordon (1913) was able to produce an encephalitis in a monkey by intraspinal injections of saliva filtrates. Both Birnberg (1939) and Silwer (1936) suggest that the frequency of symptoms from the central nervous system varies from epidemic to epidemic. Pleocytosis in the cerebrospinal fluid may or may not produce meningeal symptoms. It is stated that there is an increase in cells in the cerebrospinal fluid in 50% of cases of mumps, though some authors put the figure as low as 0.1%.

Table showing Illustrative Cases

Case No.	Age	Presenting Symptom	C.S.F. Cell Types	Cells per c.mm.	Complication	Days after Onset
1	26	Parotitis	Small mononuclear; occasional large mononuclear	230	None	—
2	36	Meningitis	All lymphocytes	375	Parotitis	1
3	35	Submaxillary swelling	,, ,,	525	Orchitis	6
4	32	Meningitis	Lymphocytes; occasional endothelial cell	1,078	None	—
5	22	,,	All lymphocytes	928	Orchitis	11

No organisms were seen in any of these cases, and the cultures remained sterile. In two the C.S.F. pressure was raised, but both patients were very excited; the other cases were within normal limits of pressure. In Case 2 the fluid was not quite clear, while in Case 4 the fluid was definitely opalescent. In Case 5 no parotid swelling was seen, though a severe unilateral orchitis developed eleven days after the onset of meningeal symptoms.

If parotitis had been present the symptoms of a meningeal involvement were fairly easy to recognize. The onset varied from the first to the fourteenth day, though commonly it occurred about the fourth or fifth day. Headache, with a pyrexia generally over 100° and quite often over 102°, appeared, ushered in by nausea and vomiting. Some degree of neck rigidity was a constant finding, the patients complaining of pain in the head, neck, and back. In two of the cases head retraction was present. Bradycardia, Kernig's sign, and photophobia completed the picture of a meningeal reaction. The temperature, vomiting, and headache generally began to subside on the third day. Most patients were free from any symptoms except weakness soon after the fifth day. One patient, who was in hospital for a month, still complained of head-

ache in the mornings. He fainted the day after discharge and was readmitted with no abnormal signs but symptoms of headache and depression. After a period of three weeks' convalescence he seemed to be well again.

Treatment

It was only natural to give sulphapyridine to cases showing meningeal symptoms. If the cerebrospinal fluid is not clear there can be little justification for withholding a drug which may be life-saving. Only the first three cases in which the fluid was not clear received the drug, 9, 8, and 6 grammes being given in the twenty-four hours. Vomiting, headache, and depression were made worse and recovery was delayed. Certainly those patients not receiving sulphapyridine recovered more quickly. Eventually treatment was mainly symptomatic—aspirin and phenacetin, with copious glucose and fruit drinks. A wash-out of the stomach on the third day with bicarbonate and an enema seemed to give much relief.

Comments

Mumps is a virus infection probably spreading via the blood stream and therefore able to affect any part of the body, with a predilection for the parotid gland. In the epidemic described the number of cases of mumps with complications was high. The percentage of all cases of patients developing meningeal symptoms in the epidemic was difficult to judge, but of those admitted to hospital 30% had signs and symptoms of meningeal involvement. It is possible that the particular virus was of a neurotrophic type. The meningeal symptoms have been described as due to the parotid gland compressing the internal jugular vein. This can be discounted because not all cases have a parotitis. In the cases described no polymorphonuclear leucocytes were seen in the cerebrospinal fluid; it is therefore to be expected that sulphonamides will not alter the course of the disease. A guinea-pig received some of the cerebrospinal fluid from Case 5 intracerebrally: no rise of temperature and no apparent ill effects ensued.

REFERENCES

Birnberg, T. L. (1939). *Minnesota Med.*, **22**, 173.
Gordon, M. H. (1913). *Lancet*, **2**, 275.
Silwer, H. (1936). *Acta med. scand.*, **88**, 355.

TREATMENT OF IMPOTENCE: A COITUS-TRAINING APPARATUS

BY

J. LOEWENSTEIN, M.D.

For the purpose of this paper I understand by impotence solely the impotentia coeundi caused by disorders of erection, accompanied, nevertheless, by normal ejaculation and normal orgasm. This is the most common form of impotence. The greater number of these cases are psychologically determined. The much rarer cases of organic impotence are not taken into consideration here, although they, too, are sometimes partially determined or accompanied by psychological factors. The treatment of psychological impotence is of course mainly a psychological one. It is carried out by the usual methods of persuasion, suggestion, and analytical treatment. Sometimes physical, medicinal, or hormone therapy is applied in addition, but all these methods are efficacious mainly through influence on the mind. In the same way, treatment by a training apparatus (according to Dr. Spiegel) which will be discussed below displays its therapeutic efficiency only through its effect on the mind and will.

This apparatus aims at supporting the insufficiently erected penis at its immissio. Accordingly, it is only a mechanical expedient without any therapeutic value of its own. It gains this value only when its application is organically fitted into the framework of an individual psychological treatment.

Psychological Impotence

Psychological impotence consists essentially in inhibitions which hamper the normal process of erection in the spinal cord so that the erection necessary for the immissio fails to occur. These inhibitions mostly consist either of conscious ideas or of unconscious and suppressed complexes and conflicts, the nature of which is disclosed by analytical treatment. But common to all cases are the fear of the failure of erection and the associated idea: "I am impotent." The erection is essentially a psychological process, and no other process is so liable to be disturbed by inhibiting ideas as that of erection, particularly in neurotic individuals. The bare idea of failure and the ensuing self-observation may be of such a strong inhibiting nature that erection fails to occur. Each new fiasco will enhance the autosuggestion: "I am impotent." In mild fresh cases without parapathic superstructure this inhibiting autosuggestion may be overcome by a reassuring explanation alone. In more serious and inveterate cases the impairing basic complexes and conflicts have to be made conscious and resolved by analytical work. If this is attained to a sufficient degree, not only are the original inhibitions removed but, as a rule, also the idea of insufficiency, together with their autosuggestive consequences, so that normal erection will take place.

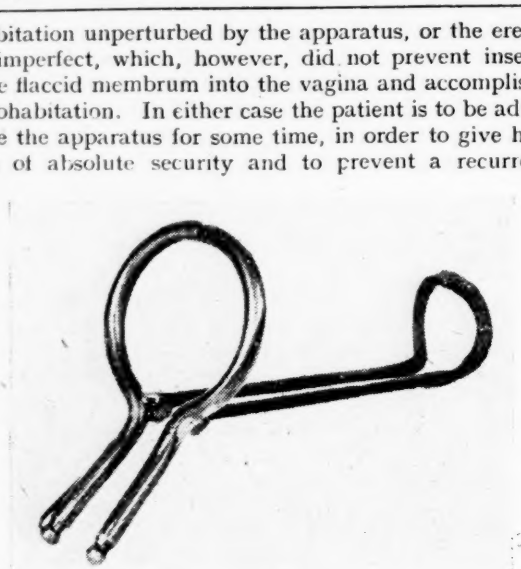
Sometimes, however, there happen to be cases which take quite a different course. In spite of good results of the analytical treatment, the patient fails again in an attempt to cohabit, because the habitual self-observation and mental tension hinder erection. Such renewed failure will, of course, further enhance the autosuggestion of incurable impotence and will not only nullify the past psychotherapeutic treatment but even endanger any future attempt. There will scarcely be a psychotherapist who has not experienced such disappointments while treating cases of impotence.

The Apparatus in Use

In order to overcome this embarrassment a coitus-training apparatus has proved to be very efficacious. It consists of twin splints made of thin wire which support the underside of the membrum, ending at each end in a ring. The ring at the pubal end rests upon the symphysis, while the opposite one grips the sulcus glandis, so that the glans remains beyond. In order to adjust it there are hinges at the upper side of the rings. The apparatus is to be fixed to the flaccid penis, and this takes no more time and trouble than, for example, putting on a condom. The two splints are held together at the pubal end by a small rubber ring, which makes it possible for the apparatus to adapt itself to all changes in the circumference of the penis. It is extremely light and easy to handle, and it does not hurt or irritate the male or female partner. Besides, it is so inconspicuous that the female partner does not necessarily notice it. The photograph, reproduced half-size, demonstrates this apparatus.

When the psychological treatment of a case is drawing to its close and the psychotherapist has gained the impression that the erection proper will function but, on the other hand, is afraid of interference caused by autosuggestive influences, the patient is handed the apparatus with the necessary instructions. The conviction is imparted to him that with the help of the apparatus he will be able at any time, regardless of erection, to accomplish a coitus, and that a failure is excluded. It is very likely that the patient will soon report a perfect success. Either the erection of the supported penis was in itself vigorous enough, so that the patient was able to accomplish the

cohabitation unperturbed by the apparatus, or the erection was imperfect, which, however, did not prevent insertion of the flaccid membrum into the vagina and accomplishing the cohabitation. In either case the patient is to be advised to use the apparatus for some time, in order to give him a sense of absolute security and to prevent a recurrence.



After a training of several weeks the patient's self-confidence will become so strong that he can dispense with the apparatus for good. (For want of space it is not possible to report case histories. Yet it may be mentioned that this paper is based upon the results of 36 cases.)

It is necessary to stress the point that the patient must not receive the apparatus before the psychological treatment is finished. Application of the apparatus at any earlier stage would not only impair the effect but endanger recovery, because the unsolved complexes would still retain their hampering influence on the reflexes. It stands to reason that the apparatus cannot replace psychological treatment, and if prescribed indiscriminately it will often be a failure and the last stage of the patient be worse than the first.

A further indication for applying the apparatus may be given by certain cases of homosexuality. One of the dominant features of this disorder is sometimes a fear of being impotent with women. In such cases it is not too difficult to resolve the unconscious complexes and inhibitions and so prepare the soil for heterosexual activity. Yet again the check to erection through the habitual counter-suggestions constitutes an obstacle that may be overcome by the training apparatus.

A final remark may be offered about the impotence of the elderly male. Potency does not usually disappear at once, but gradually. There is a long period of decreasing and changing potency. It is obvious that during this period many opportunities arise for the development of psychological inhibitions. Therefore it is always necessary to inquire for psychological causes when an elderly man complains about a considerable decrease of his potency. Naturally, the first surprising failures, which sooner or later are bound to occur, will lead to the horrifying idea: "Now my potency is gone for good and all." This idea will not easily leave the despairing or resigned man. I need not repeat the further psychological reactions which ensue and render the whole situation more and more hopeless. It is not right—as is often done—to provide the patient with a few consoling phrases about the laws of Nature and then leave him to his own devices. For these are the very cases in which psychological treatment and the prescription of the training apparatus are indicated, sometimes preventing tragic complications.

Of course, failures may occur. Their cause is not always a badly fitting apparatus or awkwardness on the part of the patient. Sometimes, in spite of the apparatus, erections do not reappear. These are the cases in which the most thorough and painstaking analysis fails because an original inferiority of the sexual organs meets the hampering psychological influences. If this inferiority of the sexual organs is diagnosed previously, the application of the training apparatus is contraindicated as well as treatment of the impotence by any other means.

Summary

In the last phase of the treatment of impotence full success may sometimes fail to appear because the patient's habitual self-observation and counter-suggestion impair erection. In such cases the described coitus-training apparatus is to be recommended in order to complete the psychological treatment. Its application is indicated only within the framework and at the end of a psychotherapeutic cure.

Medical Memoranda

Tetanus Treated with A.T.S., Avertin, and a High-calorie Diet

The following case seems to be interesting enough to merit publication.

CASE REPORT

A male farm hand aged 22 was admitted to the Hospital of St. Cross, Rugby, on October 5, 1940, suffering from well-developed tetanus. There was a history that six days previously, while returning from church on Sunday morning, he had felt very cold and "could not walk home quick enough to get warm."

The following day his jaws were stiff and he felt "sore in the back." No notice was paid to the symptoms, and he continued at work. On Tuesday his back was more troublesome and his jaws ached, but milking and other duties on the farm were fulfilled as usual. On Wednesday he was persuaded to remain in bed until after the midday meal. He now complained of much stiffness in the back, but in the evening it was still possible for him to stoop down to lace up his boots. Less discomfort was experienced when he was active; consequently he walked about the kitchen to obtain relief. On Thursday there was no improvement, but medical attention was not considered necessary until the following day. Even then the patient described his condition as "not very bad"; he could eat his food and smoke cigarettes, and at night slept well. On Saturday his medical adviser examined him again and made inquiries concerning recent injuries. The patient then recalled stabbing his left small toe with the prong of a fork fourteen days previously. The accident had occurred as he was cleaning up the rick yard. At the time of the injury the boot had been removed, but only a trifling scratch was visible; the wound was thus ignored and forgotten.

On admission to hospital a slight superficial injury to the left small toe was found; risus sardonicus was noticeable; the masseters were contracted, the forehead wrinkled, and the abdominal wall rigid. Sweating was profuse and breathing difficult, and spasms shook the patient, arching the back. The tongue was also bitten. He was put into a small darkened ward by himself. Morphine sulphate grain 1/4 was injected hypodermically and 3,000 units of A.T.S. was given intradermally and intramuscularly. There was no skin reaction, so 160,000 units of A.T.S. was administered intravenously, followed by a full anaesthetic dose of avertin per rectum.

Six hours later 40,000 units of A.T.S. was given intravenously. The following day more avertin was given at 7 a.m. and 5 p.m. The masseters were slightly relaxed and sweating was decreased. The tongue was sore, pain in the back was severe, and muscular contractions were distressing. Fluids were taken hourly.

The following day brought no change: the patient was continually moaning with the pain caused by the contractions, and he was extremely anxious concerning his condition. During the night 4 drachms of paraldehyde with 6 oz. of water had been given to promote sleep, but a full anaesthetic dose of avertin was necessary early the following morning. All through the day spasms occurred irregularly and the patient was extremely restless, attempting to roll out of bed.

50,000 units of A.T.S. was given. A dose of paraldehyde was necessary at midday and avertin at night.

On the fifth day after admission to hospital spasms were less severe and more infrequent. Food was being well taken until evening, when spasms became frequent and intense. The patient complained of pain at the right angle of the jaw. A dose of avertin at night brought two hours' sleep, so 4 drachms of paraldehyde was given at 3 a.m. The condition of the patient was worse and spasms were still causing distress, consequently 20,000 units of A.T.S. was injected round the site of the injury and intramuscularly, and 60,000 units intravenously. A furtner dose of avertin caused some relaxation. Only slight improvement was noticeable the following day, and a dose of avertin was necessary to prevent restlessness at night.

There was improvement in the general condition the next day and avertin was not necessary as a sedative; muscular spasms were slight and caused no pain. The patient now made an uninterrupted recovery and was discharged on October 24.

During treatment nursing attention was paid to pressure points and an airway was placed between the teeth to prevent the tongue being bitten. Between spasms the patient could take food naturally. Egg and milk, glucose orangeade, egg custard and cream, with nourishing beverages, were given *ad lib.* One drachm of potassium bromide was given daily throughout.

My thanks are due to Dr. J. W. Wheeler for permission to publish this case.

F. R. BREBNER-SMITH, M.B., Ch.B.

A Case of Double Tubal Gestation

The following case is rare enough to merit being placed on record:

CASE REPORT

The patient, a 4-para aged 30, was admitted to Maryfield Hospital on March 18, 1940. All her previous labours had been without complication. On admission she had vaginal bleeding which began on February 9. Her two previous periods had been normally spaced, but for the five or six months before then they had been coming on every three weeks. She complained of pelvic pain between the periods, the pain being accentuated with the onset of the flow. On March 20 she was examined under a general anaesthetic, and swellings were felt in the lateral fornices. The uterine cavity measured 3½ inches. Curettage was done, and the scrapings were sent for pathological examination. The report received was as follows: "The rather atrophic endometrium shows no evidence of decidual change. Small polypoid growths are present on the surface, and in the interstitial tissue plasma cells are present in fair numbers, indicating a degree of endometritis."

On March 29 the abdomen was opened: some free blood was found in the peritoneal cavity; both Fallopian tubes were distended and markedly pathological, and both were removed. We received the following pathological report: "This is a case of double tubal pregnancy. The larger Fallopian tube contains a gestation sac within which is a foetus of about the seventh or eighth week. The smaller tube is filled with a mass of blood clot in which chorionic villi are present. The embryo was not found. The appearances of this tube are those of a tubal mole." The right tube was the larger one and contained the foetus.

Various textbook writers mention the occurrence of intra-uterine and extra-uterine pregnancy at the same time, of multiple pregnancy in one tube, and of coincident pregnancy in both tubes. Also there may be a consecutive tubal pregnancy in the same patient. Eden and Lockyer state in their *Textbook of Gynaecology* that simultaneous binovular tubal pregnancy is the rarest form of all. They say that up to 1927 at least 42 authentic cases of ovarian pregnancy had been collected, while they had found only 28 cases of proved simultaneous pregnancy in both Fallopian tubes. They also refer to a particularly interesting case seen by Treub of Amsterdam who found quintuplets in one tubal gestation sac.

A. E. CHISHOLM, F.R.C.S.Ed., F.R.C.O.G.,
Obstetrician and Gynaecologist.
ABIGAIL LESSLIE, M.B., Ch.B., D.P.H.,
Late House-surgeon, Obstetrical and Gynaecological Department.
Maryfield Hospital, Dundee.

Reviews

BACTERIOLOGY

General Bacteriology. By D. B. Swingle, Professor of Bacteriology and Deán of the Division of Science, Montana State College. (Pp. 313. 16s. net.) London: Chapman and Hall. 1941.

Of recent years a succession of textbooks has been published in the United States which deal with bacteriology as an independent science, and with its medical as only one of several important applications. Such a work is *General Bacteriology* by Prof. D. B. Swingle, who deplores, as other authors have, the manner in which the subject is usually taught to medical students. The average course in medical bacteriology is in fact confined to the study of pathogenic bacteria only, to those characters by which they can most readily be recognized, and to such aspects of their behaviour as bear on the phenomena of infection. It would of course be far better to approach the subject in the first instance as a pure science, to present a general instead of a particularized view of what bacteria are and what they do, before dealing with the special characters of pathogens. It need scarcely be said that what stands in the way of such an approach is not so much a wrong attitude on the part of teachers as the lack of time in an already overcrowded curriculum. Another factor is the disinclination of students to revert to long hours of laboratory work having no direct application to medicine, when clinical work has captured their interest, and qualification and practice are their only goal. If the subject is to be taught in this way it should be done in the first year, as a part of instruction in biology; the teacher of medical bacteriology in the clinical years would then find a foundation on which to build. If such a reform ever comes about such a book as this would suit the first-year student. It deals successively with classification, morphology, and bacterial metabolism in a general way, and then gives some indication of the functions or other importance of bacteria in various environments—air, soil, water, sewage, foods, and industrial processes. The few final chapters on pathogenic bacteria and the phenomena of infection are too rudimentary for the student of medicine and in places actually misleading, as in the brief description of a tuberculous lesion, which is said to be an example of "hypertrophy."

The book is profusely illustrated, particularly with line drawings, some of which are over-simplified. Each chapter concludes with a series of "review questions," often of disarming simplicity and rather obvious or redundant; the prize for these qualities goes to "What is meant by 'bacterial flora'?" and "In what ways are human excreta more objectionable than soil?"

MEDICAL ASPECTS OF BOXING

The Medical Aspects of Boxing. By Ernst Jokl, M.D. (Pp. 251; illustrated. No price given.) Pretoria: J. L. Van Schaik, Ltd. 1941.

"Pushing the thumb into the lateral region of the neck is a well-known rough-house trick with which the average clinician is naturally not too well acquainted." So states Dr. Jokl, the author of this fascinating book, which contains a very great deal with which the average clinician is not acquainted. This single quotation may give some idea of why the textbook may be claimed to be unique of its kind. Dr. Jokl has already contributed much to our knowledge of sports injuries, and between 1930 and 1933, in collaboration with Dr. E. Guttmann, carried out what was probably the first comprehensive investigation of the neuropsychological aspects peculiar to the injuries

resulting from boxing. His interest in boxing has, to say the least, been keen: he has attended a great many fights, examined hundreds of boxers, interviewed fighters and trainers, been present at necropsies on those killed in the ring, and studied the, as yet, not very large literature, of which a good bibliography is given at the back of this volume. If as a result of his observations he reaches the conclusion that the dangers of boxing are such that its introduction and establishment in educational institutions are to be condemned, that it is the essence of brutality and a dangerous and undesirable form of physical education in which head injuries are unavoidable and may lead to sudden death, dementia pugilistica (punch drunkenness), or other serious complications, he as least sustains his thesis by an overwhelming collection of carefully sifted evidence. The knock-out blow delivered to the chin, which suddenly renders a well-trained athlete a quivering mass of unstrung flesh whose weight alone determines its attitude and position in space, has always fascinated the inquiring mind. The mechanism of this and its possible causes are here fully discussed and make interesting reading.

Throughout the text the author is to be congratulated on a minimal use of technical terms, so that with but little reference to a medical dictionary the non-medical reader, interested in sport, may obtain much information. At the same time it must not be considered that it is by any means a superficial and lightly presented compilation. The clinical, physiological, and pathological questions of boxing injuries are discussed fully and well, and an idea of the wide scope of the author's observations may be gathered from some of the section headings—for example, "physiology of concussion," "solar plexus knock-out," "groggy boxers," "Can a boxer increase his resistance power towards head punches by training?" "fatalities in the ring," "punch drunk," and legal aspects. Apart from intracranial effects, the lesions which boxing may produce are many; thus the punching arm may be rendered ineffective by musculo-spiral or ulnar contusion or by direct muscle damage, the kidney may be ruptured or even the duodenum torn across, and these and other injuries are exemplified.

This is a particularly important monograph which should be of value to neurologists, physicians, surgeons, and medical jurisprudents as well as to the large group of persons, both within and outside the medical profession, who are interested in sports injuries.

A DOCTOR'S POT-POURRI

In Search of Complications. The Autobiography of a Doctor. By Eugene de Savitsch, M.D. Foreword by Arthur Krock. (Pp. 362. 12s. 6d. net.) London: Robert Hale Ltd. 1941.

Dr. de Savitsch entitles his autobiography *In Search of Complications*, but in his earlier life complications seem to have been encountered without any searching for them. His description of the Russian revolution as seen through the eyes of a boy of 13 is a tragedy of the fecklessness and reasoning optimism of the White Russians face to face with grim horror. He escaped with his mother through Siberia to a Yokohama interlude of comedy. When the scene changes to San Francisco the drama becomes a roaring farce rivalling the pen of Eric Linklater. But the farce peters out in privations leading to a tuberculosis sanatorium. Then he is given a chance of becoming a laboratory assistant at Colorado University, and displays an unexpected aptitude for research, especially, as might be expected, on tuberculosis. In this way he comes under the influence of Dr. Sewall, who though devoted to research complains that doctors "accept the laboratory as an oracle when all it was meant to be was a test tube," and encouraged our author to become qualified in medicine while continuing to earn his own living. He is not so shocked by the manners and customs of the dissecting room at Colorado as the reader will be who has not been inured by an experience of the Russian revolution. Sewall advised him to transfer himself to Chicago and work under Prof. Carlson, whose dynamic personality strongly influenced him. We may hope, however, that in the descriptions of Chicago hospital practice he has given rein to his talent for extravaganza. After qualification he worked at the Pasteur Institute (at which he gives some sly digs), and acquired a high opinion of French surgery. Thence to Vienna, the conditions of which city, both medical and social, immediately before the *Anschluss* are graphically described. After a spell of research work, interspersed with big-game shooting, on the Belgian Congo, the force of his first teacher's opinion asserted itself, and he took to ordinary clinical practice. It is good to read his praise of the general practitioner and interesting to note his fear of the control of medicine by the State.

Some of the medical topics are too fully discussed for the general reader and at the same time too elementary and popular for a medical audience. It is curious to learn, by the way, that in Dr. Savitsch's day the freezing microtome was a novelty in Colorado. The swift transitions "from grave to gay, from lively to severe," though a little breath-taking, add to the individuality of this highly entertaining book. Moreover, a man who after such giddy ups and downs can say, "I feel that adversity has paid full dividends," can claim to have achieved a philosophy of life.

Notes on Books

Watts and Co. are publishing a series of sixpenny pamphlets under the general title of "The Thinker's Forum." No. 9, *The Art of Astrology*, by "GEMINI," goes briefly into the origin of this ancient pseudo-science, which began as a genuine effort to explain what was happening in the world and flourished long after mediaeval times. The authors then show with deadly effect how the story of astrology is littered with prophecies gone wrong; and, coming to modern times, they scarify the newspaper proprietors who play down to their readers by publishing horoscopes.

Prescription Writing and Formulary for Dentists, by Dr. RICHARD L. CIPES of New York, is a textbook written for dental students and practitioners to aid them in the writing of dental prescriptions. The volume contains a variety of information of general interest, such as data on the chemical sterilization of surgical implements, statistics on anaesthetic fatalities, etc. The publisher in this country is Henry Kimpton, and the price 20s.

THEODORE F. TUCKER'S booklet *Sex Problems and Youth* is published by George Allen and Unwin at 5s. This sermon on sex, as Dr. Harry Roberts says in the foreword, is better than most in that it is quite frank and not pruriently sanctimonious; and yet, high-sounding as it is, one has a feeling that it will be more impressive to those who are not in the toils than useful to those who are. It falls back a good deal on deflection and sublimation, both of which happen and are useful to some but not to all. It is a purely masculine treatise written for the male adolescent, and it is here perhaps, like many others of its kind, that it fails in its purpose. The author is never tired of stressing the duality of sex, yet while he says everything about the possible sufferings of the female he does not mention her responsibilities.

The next award of the Rolleston prize, now worth about £100, will be made in Trinity term 1942, and graduates or research students of the University of Oxford or Cambridge who have not been qualified for more than six years or matriculated for more than ten are eligible. The prize is for original research in animal and vegetable morphology, physiology, and pathology, and essays should be sent to the assistant registrar at the University Registry, Oxford, before March 31, 1942.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY JULY 12 1941

TREATMENT OF BURNS

Until the outbreak of the present war there was fairly general agreement on the treatment of burns. Coagulation methods were in use in most parts of the world and were accepted as being superior to all previous therapeutic methods. But those happy days are over. The conformity of a few years ago has given place to non-conformity, and the non-conformity is now showing signs of sectarian division. How far is this sectarian outlook likely to be of real value and how far is it justified by the evidence? Until a few years ago there was little serious criticism of the tannic acid method, and much was heard of its virtues. Since the war the position has been reversed and the value of coagulant methods has been questioned. Wartime burns present many problems not met with in civilian life, but it is doubtful whether the sweeping condemnation that has been made of the coagulant methods is fully justified by the facts. The first-aid treatment of burns suffers from confused counsel, and in hospitals there are the several devotees of coagulants, tulle gras, pastes, saline baths, irrigation envelopes, cod-liver oil, and even carron oil. The sectaries speak with dissenting voices. The therapeutic position has been further complicated both by the recent employment of the sulphonamide group of drugs in combination with the other methods of treatment, and by the claims that some of the methods of treatment are not only ideal for burns but are also equally effective for traumatic and infective conditions.

In all this there is a danger that perspective is being lost. We have to remember that the introduction of tannic acid was followed by a considerable fall in mortality. This important fact must not be overlooked, for it suggests that at least the coagulant methods were based on a sound principle and represented a real advance on earlier methods. That principle was the elimination of toxaemia and of suppuration and its complications in a large number of burns. Glover and Sydow[1] have recently reported some instructive statistics in this connexion. In a series of 1,913 cases of burns treated with tannic acid the mortality was 11.3%, while in a series of 1,369 cases treated by other methods the mortality was 24.5%. These workers showed that the chief reduction in mortality occurred after the first twenty-four hours, and also that the early mortality had not been affected by any method of treatment. In their own series of 809 cases treated with tannic acid the mortality was 8.4%, and half of this occurred within the first twenty-four hours. Glover and Sydow, however, carry their argument a step further. They do not agree with Davidson that the coagulum should be left undisturbed, but recommend that between the fifth and the eighth day, when the coagulum shows signs of separating or lifting, the area should be covered with continuous Dakin's dressings. The wound then becomes a granulating surface which is rapidly covered with epithelium or is ready for grafting. In this way the authors claim that they get the life-saving advantages of the coagulant methods together with the local and functional advantages associated with the early separation of the tan.

In last week's *Journal* there appeared two articles by Bunyan and by Hudson, and in the current issue two by Pearson and others and by Hannay, all dealing primarily with the envelope method of treating burns and wounds. In the development of the envelope method Bunyan and his fellow workers have shown great ingenuity and resourcefulness. But it must not be forgotten that the method was first introduced because of the disasters which sometimes follow the application of coagulant methods to burns of the hands and the face. Bunyan points out that the ideal dressing for a burn is one which can be kept on during the whole period of treatment and preferably without changing; it should be flexible, frictionless, and bland to the tissues; it should if possible be transparent so that progress can be continuously observed; and it should be watertight so that fluids applied to the area will be confined within bounds. Irrigation of the area is carried out by means of electrolytic sodium hypochlorite solutions of strengths varying from 1% to 50%, the strength depending on the actual condition of the wound surface. The hypochlorite solution is oxidizing and chlorinating in its effects, it is non-toxic, it encourages the transudation of serum and cells, and it exerts some bactericidal effect in strengths that are harmless to living tissues. Bunyan has now treated some 200 cases with the envelope irrigation method, but his paper contains no full analysis of these or of the mortality or end-results. It is pointed out that the method is being used in the treatment of septic fingers, infected tendon sheaths, cellulitis, osteomyelitis, varicose and other ulcers, dermatitis, etc. In the case of burns the position is summarized by Hannay as follows: "Other methods will heal a burn or bring it to the stage of grafting within comparable degrees of time, attention, and discomfort provided all goes well. The great value of envelope irrigation is that one can be quite certain that in no case treated by it, with or without theatre cleansing, will anything more than mild infection occur. Can this be claimed for any other method?"

The envelope method provides an ingenious means of irrigating many areas of the body; it is comfortable to the patient and avoids the necessity for frequent changes of dressing; it counteracts existing infection and prevents or minimizes secondary infection; and it permits exercise of the burnt member if this is desirable. All of these are of high importance in the treatment of war burns. But the method is still in its early stages, and much more experience will be necessary before it can be proved that it is so much better than other measures as to make it one of general applicability. Mortality rates must be the first criterion of success; the preserving of function must be considered as a secondary aim to the preserving of life—the desideratum is the method of treatment that will do both. It is at least encouraging to find that a number of active workers are bending their minds to the problem, and those who serve must in the meanwhile wait until the evidence has been sifted by controlled observation. The War

[1] *Amer. J. Surg.*, March, 1941, p. 601.

Wounds Committee of the Medical Research Council some time ago appointed a Co-ordinating Team on Burns; it has not been idle, and in due course we may hope that enough facts will be assembled for accurate inductions to be made.

LACTATION

Recent years have witnessed rapid and important developments in our knowledge and control of the phenomena of lactation of animals, but no corresponding advance can so far be claimed on the clinical side. The clinician may well derive some benefit and guidance from a study of modern experimental work. This is no easy matter, as the volume is truly immense and the subject complicated and often controversial. The available information has been ably weighed up by Folley in a review[1] which has the freshness of first-hand knowledge. With its help the modern concepts of lactational physiology may be summed up as follows.

The suitable development of the mammary gland is the first step in the chain of physiological processes which culminates in the ejection of milk. This growth of the gland is under hormonal control, and it has been found that in most animal species complete development of duct and alveolar systems results from simultaneous treatment with oestrogens and progesterone. There has been much speculation whether this action is direct or mediated by the pituitary. The latter view is supported by Turner's school, which believes that the hormonal stimulus acts on the anterior pituitary, and this in turn secretes two "mammogenic" hormones which promote mammary development. The most recent evidence[2 3] is at first sight rather against this important hypothesis. There is hardly any doubt, however, that the anterior pituitary plays a key part in milk secretion. Recent experiments point strongly to the existence of a specific anterior lobe lactogenic hormone or hormones (generally called "prolactin" in this country) essential for the initiation and maintenance of lactation in animals possessing the necessary mammary development. Anterior pituitary extracts which are lactogenic have also the curious property of causing the growth of the crop gland of the pigeon, and, indeed, the most widely used methods of assay of prolactin are based on this property. It is, however, becoming increasingly doubtful whether the crop-stimulating factor is the sole hormone responsible for the initiation of lactation or for the stimulating of lactation in the already lactating animal.[4] The clinical implications of these findings are bound to be profound. Clinical results with purified prolactin preparations have so far been conflicting and, on the whole, disappointing; yet the administration of crude anterior pituitary extracts to cows in declining lactation has been attended by conspicuous success and may even prove of economic value. As the potency of the prolactin preparations used clinically was assayed by the pigeon-crop test, the lack of agreement about their value for women is not altogether surprising. Folley and Young point out with reason that a woman whose milk-yield it is desirable to increase is more akin to a cow in waning lactation than to a pigeon. They plead rightly that extracts which it is intended to use clinically should be assayed for their galactopoietic power in mammals rather than for their ability to stimulate in birds the growth of a structure the secretion of which is not analogous to milk. A fruitful field is open here for the cautious and critical collaboration of the clinician with the research worker.

Other hormones take an active if less dominant part in the secretion of milk. They also affect its composition. In view of the importance of the thyroid in the regulation of metabolism, the effect of thyroxine on lactation is easily understood. In cows in advanced lactation thyroxine treatment causes a notable increase in the milk-yield and fat content and a smaller increase in non-fatty solids; indeed the hormone may be regarded as a true galactagogue. Extracts containing anterior lobe thyrotrophin stimulate also, as would be expected, the secretion of milk by the cow. While large doses of oestrogens are used clinically to inhibit lactation, it may not be generally known that small doses are galactopoietic. In the cow, for example, appreciable increases in the fat and "solids-not-fat" content of the milk are obtained by such treatment. It is probable that this action takes place through the intermediary of the anterior pituitary. Adrenalectomized animals do not lactate, neither does lactation take place in hypophysectomized animals unless prolactin treatment is accompanied by administration of corticosterone or of the adrenotrophic hormone.

Though the mammary gland is not innervated by true secretory fibres, recent work indicates that nervous influences are concerned in lactation to a greater degree than was formerly supposed. The farmer, for one, has never doubted that the cow, the sow, and the ewe can exercise a good deal of control over the flow of their milk, and to him the "holding up of milk" is an established fact. Hammond has reviewed lately the scientific evidence proving that "letting down" of milk is an active nervous reflex excited by stimulation of the teat, which causes a rise in milk pressure and is essential for the efficient emptying of the udder. In addition to this purely nervous effect the tactile stimulation of the nipple in the act of suckling or milking probably also causes another response, partly nervous and partly hormonal, through the anterior pituitary. Hammond's paper was published in a veterinary journal[5] and may have escaped the attention it deserves from the medical practitioner. Much can be learnt from it about those first principles of maternal emotion common to man and beast, which make woman experience the "draught," and the cow to "let down" her milk.

Few will be surprised by claims[6] that, besides hormonal and nervous mechanisms, certain specific nutritional factors are essential to the secretion of milk. These recent additions to the long string of confirmed and probable vitamins—vitamins L_1 and L_2, as they have been called—are apparently needed for lactation alone of all bodily functions, and would thus be true lactation vitamins. It may be a relief in these days of rationing to hear that this work has not so far been confirmed,[7] and that, moreover, fair lactational success has recently been observed in animals receiving highly purified diets supplemented with all known vitamins in the pure state.[8] The moral of this is that, provided the nursing mother gets enough of the recognized protective foods, especi-

1 *Biol. Rev.*, 1940, **15**, 421.
2 *Proc. Soc. exp. Biol.*, N.Y., 1940, **45**, 835.
3 Ibid., 1940, **44**, 398.
4 *Lancet*, 1941, **1**, 380.
5 *Vet. Rec.*, 1936, **48**, 519.
6 *Science*, 1938, **87**, 372.
7 *Biochem. J.*, 1938, **32**, 1988.
8 *Proc. Soc. exp. Biol.*, N.Y., 1940, **45**, 625.

ally milk, greens, and vitamin D, she need not worry about these more remote letters of the alphabet. Milk contains three constituents which are found nowhere else in nature—lactose, caseinogen, and the characteristic milk fat. There has been much speculation as to their origin, and much ingenuity has been displayed in bridging the gap between blood and milk. How this was done is well described by Folley. Those with a biochemical leaning will read with interest this story of scientific detection, and will learn how radio-active elements acted with conspicuous success as blood-hounds. The tale of recent achievement in lactational physiology is truly impressive. It may be fallacious to argue from mice to men, but to apply the results of experiments on mice (and cows) to cautious clinical work is but common sense.

SKIN AND MIND

It has been well said that the skin, like the Freudian ego, faces two ways—inwards towards the body, and outwards towards the external world.[1] For this reason it forms a particularly suitable medium for the study of what have been called " psychosomatic " problems, or the effects on bodily function of emotional disturbances. It is surprising that it has not received more attention from dermatologists and psychiatrists, so that the psychological section of even the most ambitious of dermatological textbooks is not as illuminating as it might be. What should also commend the topic to the " dermatopsychiatrist " is the fact that the skin is unusually susceptible to emotional influences, both directly in the vasomotor and pilomotor reactions, and indirectly through the influence of disturbed gastric function on the skin.[2] Furthermore, skin reactions are visible to the eye, so that the effects of guilt and pride as inner sources of psychological conflict are intensified. The skin, in fact, becomes a kind of colour indicator of the state of the super-ego, so that it is not so fantastic as it sounds to say that in some cases rosacea may represent the perseveration in a predisposed skin of the operation of a bad conscience. Occasionally, as in some cases of dermatitis artefacta, the skin receives assaults upon it which are dictated by a guilty mind seeking to expiate its naughty wishes. Stokes, more than most dermatologists, has realized the potentialities for clinical and pathological observation that are thus offered, and in his most recent publication he has reviewed the psychosomatic correlations of allergic conditions.[3] The remarkable effect of hypnosis in some states of allergic sensitiveness, and its ineffectiveness in others, suggests a mentally rather than physically conditioned basis for some allergic phenomena. It can even be said that the allergic personality (for example, in the child with the eczema-asthma-prurigo complex), which is described by Rogerson[4] as one of unusual intelligence, ambition, and aggression, has to be understood before the manifestation of allergy in an individual case can be fully comprehended. The frequent association of certain allergic phenomena with a particular type of personality suggests a basis for a theory of temperament, and is also important for practical clinical examination.

These are but examples of the possible relationships of mind and skin. Not only guilt, but anxiety in any form, anger, desire for sympathy or attention or escape, tension and conflict, desire and substitutive satisfaction, can all be reflected in pathological conditions of the skin. Disturbed relationships between parent and child, husband and wife, may all be mirrored there as physical signs, just as they so often are in psychoneurotic symptoms. The immediate reaction of the essentially physically trained dermatologist to such observations is, as Stokes points out, " apt to begin with confusion and end with incredulity "—a sequence hardly to be marvelled at. Not only dermatologists, but physicians of all branches, would do well to recognize the wisdom of Stokes's admonition " to recognize that other specialties besides his own have their intricate observational criteria as objective and valid as his, and to avoid the role of obstructionist; and so advance the cause by tolerance, even if he cannot supply critical understanding and unqualified acceptance."

1 *Brit. J. Derm. Syph.*, 1938, **50**, 1.
2 *Arch. Derm. Syph.*, Chicago, 1932, **26**, 478.
3 *Psychosomatic Med.*, 1940, **2**, 438.
4 *Quart. J. Med.*, 1937, n.s. **6**, 367.

CONSANGUINEOUS MARRIAGES

It is now known that any effect upon the children of blood relationship between the parents is simply due to the tendency of relatives to share more of the same kind of genes. A recessive trait is more likely to appear among the children of cousins, because they are more likely to carry the same genes in heterozygous form. This aspect of the problem of consanguineous marriage has received much attention, though actual data have been scarce. In 1934 the Human Genetics Committee of the Medical Research Council decided to obtain the co-operation of hospitals in a large-scale survey. The principal objects were, first, to ascertain the frequency of consanguineous marriages; and, secondly, to discover whether any particular diseases were associated with an increased frequency of such parental relationship, thus indicating the action of recessive hereditary factors (which would have to be rare to produce any marked difference). Dr. Julia Bell has analysed 69,000 completed cards (a further 20,000 were usable for certain purposes only), and the results have recently been published.[1] The brief, though interesting, historical introduction is perhaps misleading in one respect. While it is true that eugenic fears were by no means unknown in the past, the compulsion behind the universal human taboo on incest is sociological, being the need for maintaining a harmonious family group. This is clearly shown in the very able report recently published by a Church of England Commission.[2] The incidence of first-cousin marriage among the parents of 49,000 in-patients in general hospitals was 0.61%, and a division by age showed that the rate has been declining in recent years. Among the smaller number of out-patients the rate was somewhat higher, and it was notably higher in special hospitals among both in-patients and out-patients with neurological diseases. The findings of a study of the connexion between the consanguinity rate and the occurrence of different diseases are, on such numbers as these, suggestive rather than conclusive. High on the list come steatorrhoea, dystrophia myotonia, congenital dislocation of the hip, muscular dystrophy, talipes in infants, leukaemia, exostoses, dermoids, arthritis, tics, diabetes mellitus (especially in the young), and paralysis agitans. Some of these are undoubtedly hereditary and recessive, and investigation of the others, as well as of some conditions too numerous to be mentioned here, would be a promising line of research. One remarkable finding was that, while cancer taken as a whole showed no undue consanguinity rate, the incidence among patients suffering from cancer of the cervix was 2.19%. Further data were obtained with the help of the Radium Institute of Sheffield and the Marie Curie Hospital in London, when the percentage incidence was found to be 1.74. This figure on the larger numbers—seven first-cousin marriages out of 403—is significantly higher than for the whole hospital

1 *Ann. Eugenics*, 1940, **10**, 370.
2 *Kindred and Affinity as Impediments to Marriage*. London: Society for Promoting Christian Knowledge. 1940.

population. It is likely, therefore, that recessive genes play a part in determining susceptibility to cancer at this site. The figures in Dr. Bell's analysis were also used to determine the sex ratio for various diseases. The figures ranged from 86% of males with cancer of the tongue, mouth, and lip to 88% of females with affections of the thyroid gland. These two examples may not be surprising, even though the present generation does not smoke clay pipes, but a number of other figures depart widely from the conventional textbook statements.

THE DYSTROPHIES OF THE MACULA

The classification of inherited lesions of the fundus situated mainly or exclusively in the central area presents considerable difficulties. The ophthalmoscopic appearances and symptomatology vary within very wide limits, but at the same time it is difficult to make a clear subdivision. A long and detailed paper by Arnold Sorsby,[1] containing, moreover, many admirable illustrations, is therefore welcome. The personal observations include a description of members of eight family groups; there is a detailed review of the literature, and something like order is introduced into a complicated subject. There is a genetic discussion, too, and a more general genetic appendix by Hans Grüneberg. In the first place it is shown that the conception of a lesion confined to the central area is too narrow. There may be perimacular involvement and even peripheral lesions. Unfortunately no satisfactory histological evidence is available, and the author states that it is tempting to regard the macular dystrophies as the counterpart of retinitis pigmentosa, the one group of conditions being essentially a degeneration of the cones, the other of the rods. This would account on anatomical grounds for the distribution of the lesions in the macular dystrophies, the changes being most marked in the central region, though not entirely confined to it. In one of the cases described, however, retinitis pigmentosa was present also, and the author prefers to avoid too definite a statement. These retinal degenerations can be separated from two others: central choroidal sclerosis and angioid streaks, which are due to a dystrophy of the central internal limiting membrane. The central retinal dystrophies include a range of ophthalmoscopic appearances varying from fine mottling of the macula to intense pigment formation, hole formation, and exudative reactions. Best's disease, so far reported in one family group only, is not excluded, a notable feature in this instance being almost complete colour-blindness. Another curious condition which must be included is "Doyne's choroiditis." This very rare manifestation is characterized by the massive formation of white dots in the disk-macular area with subsequent atrophy. Haemorrhages and a honeycomb pattern may also be present. The symptoms of macular dystrophy, too, vary widely. There may be, as is well known, almost complete day-blindness, or an affection so slight that the sufferer is himself unaware of it. The condition is "not necessarily rapidly and relentlessly progressive." There is much variation in age of onset also, and some lesions may actually be congenital. The differential diagnosis, apart from the conditions already mentioned, must be made from congenital macular coloboma also. Some non-inherited conditions have to be distinguished: retinitis centralis serosa, traumatic lesions, and central chorio-retinitis. Amaurotic family idiocy presents no difficulty. The single clinical entity, if the author's cogent arguments are accepted, finds no parallel in a single genetic entity. It is certain that more than one main gene may cause the condition, for some cases show dominant inheritance (usually irregular—that is, with skipping of generations), while others are clearly recessive, as is shown by a high incidence of consanguineous parentage and an absence of affected ancestors. There is no doubt also that the different genes may cause somewhat different manifestations and also tend to operate at different ages.

[1] *Brit. J. Ophthal.*, 1940, **24**, 469.

PREVENTION OF JUVENILE DELINQUENCY

In a normal peacetime year 28,000 boys and girls under seventeen years of age commit indictable offences which bring them before the juvenile courts and, of course, there are innumerable other cases which never come before the courts at all. On June 30 the National Association of Maternity and Child Welfare Centres and the National Association of Probation Officers called a conference in London to discuss the importance of mothercraft teaching as a means of preventing juvenile delinquency. Confronted with the problem of the "difficult" child, an uninstructed mother may very well take the line of least resistance, perhaps encouraged by a neighbour who says that he will "grow out of it," whereas in fact he grows into it, and when he comes to realize that he is not as other children he compensates himself under a sense of inferiority by behaving badly. As one of the principal speakers, a probation officer at Willesden, Miss Kennedy, pointed out, there is a close connexion between bad and unclean habits, and insecurity of environment and child delinquency. Miss Kennedy said that inquiries in reception areas had shown that there were many cases of hitherto normal children who, as soon as they were evacuated, developed bad habits and were moved from billet to billet. When at last they returned home they gave no more trouble—it had not been realized how greatly they had been upset by removal from familiar surroundings. Bad homes are very often responsible for the development of delinquent tendencies; the broken home, the home in which the parents quarrel, parents who fail to adjust their affections as between one child and another, and so forth—all these are factors which directly promote child delinquency. Another factor is failure on the part of the parent to attend to any signs of physical or mental defect in the child. A large number of children who develop delinquent tendencies are not mental defectives but borderline cases, and a child whose defect is merely physical is tempted into delinquency in order to compensate himself. Dr. Leslie Housden, the other principal speaker at the conference, described delinquency as a self-inflicted social disease for which the true remedy had still to be found, the authorities as yet having administered only palliatives without curing the disease. Just as delinquent children were not necessarily mentally defective, so their parents might have no trace of mental defect, and many who reported their children as unmanageable were intelligent people, but, dreaming of the ideal child, they had not seen clearly their own part in the formation of its character. Children, unless they are delicate and weakly, have a store of high spirits and muscular energy, the expenditure of which will be guided by the wise parent: merely to turn the child out of doors to "work it off" made the parent, in Dr. Housden's opinion, an accessory before the fact in the child's probable offences. Too often delinquents are not guided but scolded and abused, and he emphasized the need that parents should realize their responsibility for the creation of a good home atmosphere, which was the chief safeguard against delinquency. Mothercraft consisted of more than merely teaching girls how to feed, clothe, and care for their babies; it also meant their instruction in cleanliness and orderliness. It also taught the supreme importance of the mother's influence on the development of the child's character.

We regret to announce the death on July 8 of Sir William Willcox, consulting physician to St. Mary's Hospital, and for more than twenty years medical adviser to the Home Office.

CHEST SURGERY IN WAR

This is one of a short series of articles based on lectures given at the British Postgraduate Medical School, Hammersmith

SOME ASPECTS OF CLOSED WOUNDS OF THE CHEST

BY

J. G. SCADDING, Major R.A.M.C.

An attempt is here made to consider, necessarily from a main theoretical standpoint, the possible effect of advances in knowledge and technique in the treatment of wounds since the war of 1914-18.

Of such advances three are outstanding. They are: chemotherapy for the control of infection; increased understanding of the technique of artificial pneumothorax; and the development of thoracic surgery, including the elucidation of the principles of drainage of the pleura by closed methods.

Principal Dangers

The chief dangers of wounds of the chest are, in roughly chronological order, mechanical dangers, haemorrhage, and infection.

Mechanical.—Open pneumothorax, due to large gaping wounds in the chest wall through which air freely sucks in and out, or "traumatopnoea," is productive of great respiratory and circulatory distress; the necessity for early surgical intervention in such conditions is obvious. Consideration of these cases is outside the scope of the present discussion; but after surgical treatment of the wounds the thorax will often be closed completely, leaving the patient in a position comparable to that of one whose wounds have been "closed"—that is, not permitting the free ingress and egress of air—from the beginning. Closed pneumothorax, unless of large size and under tension, is not in general productive of distress or respiratory embarrassment: this, of course, is abundantly demonstrated by the large number of patients with therapeutic pneumothoraces, even bilateral ones, who are able to lead active lives. A closed pneumothorax in which the pressures are known and controlled may actually prove to be of benefit in the treatment of certain types of chest wounds. The only sort of pneumothorax without external "sucking" wound which is dangerous to life is that which is under tension because of a valvular pleuro-bronchial communication. This requires active treatment. Experience in 1914-18 showed that such a tension pneumothorax is a relatively rare complication of chest wounds.

Haemorrhage.—This may occur from the lung or from the chest wall. Bleeding from the lung may be into the pleura, giving rise to pneumothorax, generally haemopneumothorax; or into the bronchi, giving rise to haemoptysis of varying grades of severity; or into both pleura and bronchi. In either case this form of bleeding may be controlled more or less completely by collapse of the lung by pneumothorax. Bleeding from the chest wall may be either external, through the exit or entrance wounds, or into the pleura, causing haemothorax. Such bleeding can be controlled only by surgery, since the bleeding vessels—generally intercostals—cannot be compressed satisfactorily by any indirect method.

Infection.—Infection is the immediate cause of the late mortality in chest wounds. Its incidence and nature obviously depend to a large extent on the environmental conditions at the time of wounding. During the war of 1914-18 conditions were so unfavourable that it is surprising that the incidence of infection was not much higher than that actually observed. The following figures may be quoted:

Elliot and Henry (quoted by Duval):	
Cases of haemothorax, 500—	
Infected by anaerobic organisms	87 (17%)
Duval (1918):	
Bullet wounds, 49: Infected	0
Shell wounds without retained fragments, 33: Infected	6 (18%)
with 111:	28 (24%)

Conditions favourable to the development of anaerobic gas-producing infections are provided by the presence of large masses of blood and fibrin clot in the pleura. Hence it is probable that early aspiration of haemothorax may lower the frequency of such infections; and while no statistics are yet available, there can be little doubt that prophylactic chemotherapy by sulphonamide drugs can reduce very considerably the incidence of infections in general. These considerations are important in relation to the question of the maintenance of pneumothorax in chest wounds involving the lung; for if the pleura becomes infected the presence of a large pneumothorax may determine the conversion of what might have been a small localized empyema into a large generalized pyothorax, the gravity of the prognosis and the difficulty of treatment being thereby much increased. Thus if infection is to be expected in from 20 to 40% of cases, as in 1914-18, the maintenance of pneumothorax may well be considered to be more dangerous than useful. On the other hand, if the incidence of infection can be reduced by chemotherapy and early aspiration the maintenance, or induction of pneumothorax—the possible benefits of which have been outlined—becomes a matter for serious consideration.

Significance of the Intrapleural Pressure

The measurement of the intrapleural pressure is a very simple matter, and in cases of traumatic pneumothorax much useful information may be derived from it.

Any standard type of artificial pneumothorax apparatus incorporates a manometer with which such a measurement may be made; but if this is not available all that is required is a water manometer connected by rubber tubing to a needle. The manometer may consist of a simple glass U-tube, 30 cm. or more in length, with water standing at rest half-way up each limb: it should be remembered that a change in level in one arm of one unit is equal to a change in pressure of two units, since the change is accompanied by an equal one in the opposite direction in the other limb (Fig. 1). If the needle is by error introduced below fluid, the fluid may be sucked into and out of the rubber tubing; the latter should therefore be sterilized. If it is sterilized by boiling care should be taken that water is shaken out of it as completely as possible, since a small amount of water blocking it will prevent the accurate reading of the intrapleural pressure. Though a special needle is a pleasant luxury any needle of reasonable gauge can be used. About 9 s.w.g. is the smallest practicable gauge, and for simple measurement of the intrapleural pressure in an already existing pneumothorax there is no advantage in using a specially stout-gauge needle. The needle should also be dry; this may be secured by taking it out of spirit and carefully flaming it. To measure the intrapleural pressure in a traumatic pneumothorax a convenient area in an intercostal space above the level of any fluid that may be present should be anaesthetized (though in emergency—e.g., tension pneumothorax—this anaesthetization may be omitted) and the needle inserted through this area into the pleura.

The intrapleural pressure is generally expressed in centimetres of water below and above atmospheric pressure; for convenience the symbols − and + are used to denote these

pressures, though strictly, of course, the term "negative pressure" is nonsensical. Thus $-x$ cm. of water is used to mean x cm. of water below atmospheric pressure. Also, the intrapleural pressure normally becomes more subatmospheric in inspiration and less so in expiration. The mean intrapleural pressure is generally taken as the arithmetical mean of the pressures in inspiration and in expiration. The normal mean intrapleural pressure varies from about -5 to -9 cm. of water.

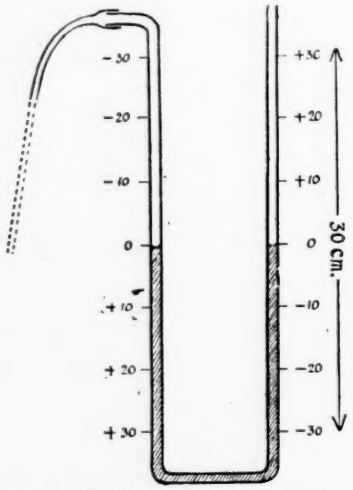


FIG. 1.—Simple water manometer.

The respiratory excursion of pressure varies greatly with such diverse factors as the depth of respiration and the gauge of the needle; thus with a mean intrapleural pressure of -6 cm. the manometric excursion may be -7, -5, or -8, -4, or -10, -2, etc.

As the size of the pneumothorax increases, the intrapleural pressure also steadily increases, at first becoming less subatmospheric, until in a large pneumothorax it exceeds atmospheric pressure, and in "tension" pneumothoraces mean pressures of $+10$ or $+20$ cm. may be attained. The level of intrapleural pressure at which the pneumothorax causes respiratory distress varies greatly, depending upon such factors as the mobility of the mediastinum and the presence and extent of pleural adhesions; most adults are not distressed with an intrapleural pressure equalling atmospheric, provided it is gradually attained, though with an abnormally mobile mediastinum even -2 cm. may be accompanied by distress. In judging the probable effect of a pneumothorax in contributing to symptoms of distress the measurement of the intrapleural pressure must be correlated with the physical signs, especially the position of the apex beat.

Other pathological conditions besides pneumothorax cause changes in the intrapleural pressure. Of these the most important from the point of view of chest wounds is atelectasis of the lung. Atelectasis causes a diminution in the intrapleural pressure—i.e., the pressure becomes more subatmospheric. The phenomenon is observed even in the presence of a pneumothorax: thus if the pressure in a pneumothorax which has averaged -4 cm. suddenly becomes -10 cm., the most likely explanation is that part of the lung has become atelectatic. Depending upon the mobility of the mediastinum, a contralateral atelectasis will cause a greater or lesser change of similar sort in the pressures in a pneumothorax.

Another variation in intrapleural pressure which is of importance in dealing with older persons is that occurring as a result of pulmonary emphysema. In this condition the normal mean pressure more nearly approaches atmospheric the more severe the changes in the lung. Hence in older men all pressures will be expected to be a little above—i.e., less subatmospheric than—those observed in younger men.

Surgical Intervention

It cannot be doubted that the following three conditions are urgent indications for surgical intervention:

Large External "Sucking" Wounds.—The closure of these is a matter of extreme urgency. As a first-aid measure an air-tight dressing must be applied, and surgical closure as early as possible is indicated.

Extensive External Wounds and Haemorrhage from the Chest Wall.—These are to be treated on the ordinary surgical principles of excision of wounds and control of haemorrhage.

Evidence of a Retained Foreign Body.—The influence of this complication on the incidence of infection has already been noted. Although an immediate recovery may be made without undue delay in cases in which there is a foreign body retained in the lung itself, experience has shown that in a large proportion of these cases chronic pulmonary suppuration—chronic abscess and bronchiectasis—develops subsequently.

Opinion may be divided, however, on the extent of the surgical intervention in these cases, on the application of surgical treatment to cases not showing these indications, and on the relative merits of complete closure of the chest after operation or drainage by a closed method.

With regard to the extent of surgical intervention, this must in practice depend very largely upon the available facilities, both of personnel and of equipment. Without the services of a specialist thoracic surgeon it would certainly seem wisest to confine surgical intervention to thorough attention to the three points mentioned above. In favourable circumstances more complete operations on individual cases and the extension of surgical treatment to suitable cases not showing these urgent indications may prove to be advisable. The extent to which such urgent surgery is likely to be required may be exemplified by the figures of Duval (1918), who was one of the first surgeons to advocate the application of the ordinary principles of wound surgery to chest wounds. He reported that of 161 cases he operated on 46 (29%); 29 (18% of the total) of these were urgent operations for haemorrhage or open thorax, and 17 were later operations for removal of foreign bodies or for "direct treatment of the lung wound." Of the 46 cases operated on 13 ended fatally. 102 cases presented no indication for operation; of these only 1 ended fatally. The statistics were complete, with the exception of deaths occurring at regimental aid posts.

With regard to the question of complete closure of the chest or air-tight (under-water) drainage after operation, the latter has become a routine with many thoracic surgeons for a few days at least after thoracotomy. The advantages of this procedure are that it acts as a safeguard against the development of pressure pneumothorax and that it drains away blood and pleural exudate. The disadvantages are that it often requires much attention for its smooth maintenance, and that it considerably diminishes the ease with which a patient can be moved—a matter that may be of great importance under war conditions. Also, the rapid re-expansion of the lung which a properly arranged under-water drainage secures may be actually disadvantageous if there is a wound of the lung itself; clearly this will tend to heal more readily if the lung remains collapsed for a few days. It need hardly be mentioned that in the presence of a free pleura any form of drainage except air-tight under-water drainage is highly dangerous. On the whole, then, it would seem best, after operative treatment of the limited sort mentioned above, to close the chest completely. This leaves the patient in the same position as regards after-treatment as one with a "closed" wound which has not required operation. Of course, these remarks on drainage do not apply to cases treated in special centres where more radical surgical treatment, even involving lobectomy, may be carried out.

(The article will be concluded in our next issue.)

MOTOR BARGE AS AMBULANCE SHIP

BY

J. EVANS, M.B., B.Ch.

Flight Lieutenant, Royal Air Force Volunteer Reserve

The following description of a motor barge converted to act as an ambulance ship may be of interest. The purpose of the craft is to rescue and evacuate casualties from ships in or around the Thames Estuary.

The craft is a twin-screw coasting barge with two 60 h.p. Diesel engines, having an overall length of 108 ft. with a maximum speed of 8 knots. When it was taken over the accommodation available for conversion consisted of a large hold about 45 ft. by 20 ft. This was divided into two parts, a ward and a treatment room.

Treatment Room and Reception Ward

The treatment room measures approximately 25 ft. by 20 ft. Lying athwart the ship at the forward end of this compartment are two wooden stands 6 ft. apart and raised 4 ft. from the ground. Each stand has two grooves to receive the stretcher handles. The stretcher cot is placed on these blocks and can then be used for minor operating or first-aid work. The instrument table is a long white-painted asbestos slab running parallel with the blocks and covering over the ballast. On the far end of this is a petrol stove for heating water. This compartment also contains a slow-combustion stove, an enclosed "elsan" closet, and a fresh-water tank, laid out as shown in the diagram.

The reception ward is about 20 ft. square and accommodates twelve stretcher cots of original design and twelve G.S. stretchers. The ward also contains first-aid tables and is fitted with a cupboard and splint rack. It is ventilated by four lights in the deck and two ventilators. The deck lights are provided with wire-protected glass.

Stretcher Cot

The stretcher cot mentioned above was designed by Lieut.-Commander Hall, R.N. It consists of a rectangular piece of canvas with four flaps into which a Service stretcher can be fitted, the four corners of the canvas then being laced up. At either end is a wooden spreader stitched in the canvas, and rising from this is a triangular flap of canvas with a large metal ring hole. These can be fitted to a large wooden spreader and attached to the topping lift. The wooden spreader at either end of the cot keeps the canvas apart so that when a patient is inside it forms a canvas box with stiff sides. In addition, canvas flaps cover the patient and can be laced. It should be pointed out that holes are left in the canvas flaps through which the stretcher feet and handles protrude. The stretcher cots are carried slung athwart the ship, six on each side of the compartment. Hooks to carry one end of each cot are fixed in a stout beam, which is secured to the bulkhead; the hook for the other end of the cot is fixed to a stout wooden upright 7½ ft. from the bulkhead. There is a separate upright for each cot, and when not in use these fold flat to the deck. The beam which carries the cot hooks at the bulkhead is grooved at intervals to take the handles of six G.S. stretchers, the other ends of which are carried on the top of the inboard uprights. Thus twenty-four patients can be carried: twelve in stretcher cots and twelve on G.S. stretchers.

Method of Operating

The ship is brought alongside the craft where the patient is, and in calm weather he is taken off on a G.S. stretcher in the normal manner. He remains on this stretcher until he arrives in hospital ashore. In rough weather the stretcher cot and its stretcher are put aboard the ship where the patient is and the patient is placed in the cot. The cot is then laced up and the patient swung aboard by means of a simple topping lift and boom operated by a small geared hand-lift. The cot is lowered through the deck of the ambulance ship into the treatment room. Here the patient is attended to and receives such first aid as is practicable before he is passed through wide double doors into the reception ward.

As a number of casualties may have to be taken aboard at one time the cot hooks and stretcher racks furthest from the door are used first. All the wooden uprights on each side of the middle gangway are laid flat, and there is thus ample room to move stretchers or stretcher cots into position. Although only 1 ft. is allowed between stretchers the treatment of patients in the ward is fairly easy. The patient on the stretcher is only 4 ft. from the ground. The patient in the stretcher

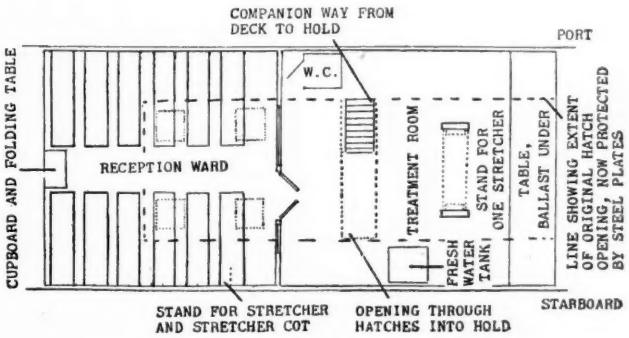


FIG. 1

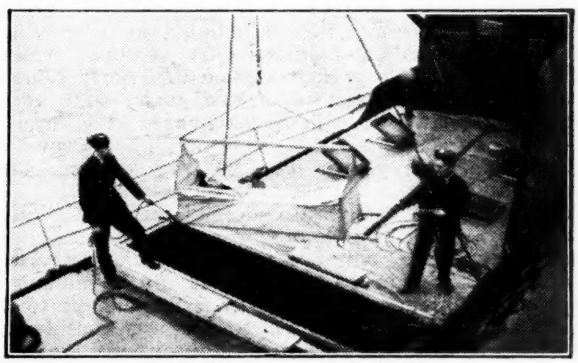


FIG 2

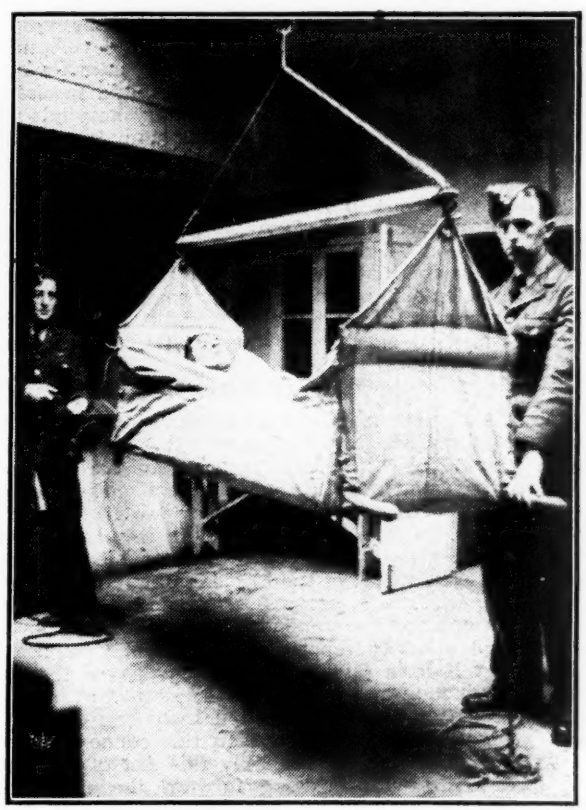


FIG. 3

cot is rather low, but he can be seen and dealt with without difficulty as there is plenty of space between the stretcher cot and the stretcher. Two Neil Robertson stretchers are carried in case it should be necessary to remove a casualty from a very confined space. Once this has been done he can be transferred

to a stretcher cot and slung aboard the ambulance ship. When all the patients are aboard and the ship is proceeding the hatch giving entry to the treatment room is covered in with tarpaulin.

The ship carries a crew of nine: master, mate, engineer, deck hand, corporal nursing orderly, and four nursing orderlies (airmen).

I wish to record my appreciation of the help given me in the preparation of this ship by my Commanding Officer, the representative of the Emergency Committee of the Port of London, and the Naval authorities.

REGIONALIZATION OF HOSPITALS AND HEALTH SERVICES

BY

Sir FREDERICK MENZIES, K.B.E., M.D., F.R.C.P.

At the first meeting of the Medical Planning Commission[1] I observe that Viscount Dawson of Penn expressed the opinion that "the most important question to settle was the regionalization of hospitals and health services." Looking back over a period of more than forty years of continuous daily contact with the many and varied problems associated with the development of the hospitals and health services of London, I am profoundly convinced of the truth of the statement made by Lord Dawson. Few, if indeed any, members of our profession are so fortunately situated as the Chief Medical Officer of the L.C.C. Public Health Department for obtaining a continuous and comprehensive view of the many and varied problems concerning health and disease in a massed population of millions of people in all grades of society from the highest to the lowest, and this privileged experience was considerably extended when the L.C.C. became, by virtue of the Local Government Act of 1929, not only the largest hospital authority but also the largest public health authority in the world. In other words the organization for the prevention and treatment of disease became, for the first time, unified under one authority. Necessarily this great development brought the public health department into intimate contact with general practitioners, consultants, and specialists in all branches of medical science, voluntary hospitals and voluntary agencies of all kinds dealing with the health, happiness, social and economic welfare of the inhabitants of London. In addition it can fairly be claimed that every effort was made to extend all the facilities available for the improvement of undergraduate and postgraduate medical education. I relate these facts for no other reason than to emphasize that my opinion of the truth of Lord Dawson's statement is based upon some considerable practical experience of the trend of thought among laymen as well as medical men during the last twenty years and more.

Approach to the Problem

Another statement made by Lord Dawson at the same meeting is in my experience equally true: "War did not so much create new problems as bring to the forefront problems which had been for long in the stage of incubation." The last war (1914-18) showed the truth of this statement very clearly in connexion with the long-drawn-out struggle over the highly controversial subject of Poor Law reform. The report of the Maclean Committee, drawn up while war was still in progress, succeeded in reconciling the strongly opposed recommendations put forward in the majority and minority reports of the Royal Commission on Poor Law Reform (1909), and thereby paved the way for the introduction and passage of the Local Government Act, 1929—one of the most epoch-making Acts of Parliament during the last 100 years. In this connexion it is well worthy of notice that probably this Act of 1929 has had more to do with bringing forward the subject of "regionalization of hospitals and health services" than any other single factor, and that the duties and responsibilities placed upon county councils and county boroughs in connexion with hospital services by the same Act of Parliament may well prove to be the most important determining factor in promoting co-operation between public health authorities and the voluntary hospitals, or alternatively the gradual elimination of the voluntary hospital system as we have known it up to the present time.

Therefore, it seems clear that all those who are genuinely anxious for the future development of our hospitals and health services upon sound principles will be well advised to approach the regionalization of these services in a statesmanlike attitude of mind in order to arrive at wise decisions. To be more precise, it means that those who are constantly preaching the virtues of the municipalization of all hospital services and those who are equally vociferous advocates of the "independence" of the voluntary hospitals must abandon for ever their silly shallow slogans and talk "horse sense" together.

Some Influencing Factors from the War

The Medical Planning Commission will also no doubt be fully alive to the fact that certain extremely important developments have taken place since the outbreak of war which must have a profound influence upon the subject of regionalization of hospitals in particular.

The first of these, to which very little attention seems to have been given in the medical press, is the practical effect or result of the enormous structural damage to hospitals of all kinds, voluntary and municipal, due to bombing. From reliable sources I have been able to collect a certain amount of useful information on this point and thereby to obtain a fairly accurate picture of the position up to the present time. I can safely say that the number of hospitals damaged, in greater or less degree, represents an actual loss of some thousands of beds, and with some practical knowledge of hospital construction and equipment one can form a reasonably approximate estimate of what it will cost to bring our hospitals back into the conditions which existed before September, 1939. It must suffice for the moment to say that the cost on a pre-war basis would amount to not less than £20,000,000, and that, if the war ended to-morrow, it would probably take four or five years at least to complete the work of reconstruction. Be it noted, however, that the war is not yet over and that much more extensive structural damage may yet take place before we can count the full cost of post-war reconstruction and re-equipment.

The next question which naturally arises is, Where is the money coming from to rebuild and re-equip? We may assume that the local authorities will be quite capable of looking after the financial requirements of their own hospitals, but, inasmuch as they will also be compelled to shoulder very heavy capital expenditure for housing, education, roads, etc., etc., it does not seem likely that they will be able to do much to help the capital expenditure involved in the reconstruction of the damaged voluntary hospitals. It looks, therefore, as if the great bulk of the capital expenditure in the case of the voluntary hospitals must come from the State. I submit that voluntary contributions will not suffice to meet the situation, because the amount of capital expenditure involved will be too great. If, therefore, it must mean grants of some millions of pounds from the State or the local authorities, or both, upon what terms and conditions are Parliament and the local authorities going to allow public funds to be ladled out for the benefit of voluntary hospitals? It seems to me to be obvious that in such circumstances much will depend upon what view is taken by the Government of the day upon the whole subject of "regionalization of hospitals and health services." We do know the views of the present Minister of Health and his predecessor, Mr. Malcolm MacDonald.

Another interesting aspect of this question of the reconstruction of hospitals, whether municipal or voluntary, is the fact that in connexion with the Emergency Hospital Service many thousands of hospital beds have been provided either by means of completely new hospitals on new sites outside our great towns or additions to existing hospitals wherever selected for this purpose. Many millions of pounds have been spent out of public funds for this purpose during the last two years. It is obvious that such hospitals cannot simply be scrapped after the war is over. They must so far as possible be dovetailed into existing hospital services or in some way linked up with a regionalization scheme.

[1] *British Medical Journal*, May 17, p. 759.

Post-war Distribution of Population and Industry

This brings me to another much-discussed problem—namely, the geographical distribution of industry and population. We must assume that one of the outstanding consequences of the war will be that Lord Reith's department will put forward a new conception of town planning with all its implications in relation to housing, transport, education, health, and hospital services, etc. The subject is much too complicated and comprehensive to be more than merely hinted at here as something which "must be borne in mind," but, at least, we can say that it is a factor to be reckoned with in considering the regionalization of hospital and health services.

Finally, I would like to draw attention to the fact that "regionalization" is one of those questions which has been "for long in the stage of incubation." Anyone who has been intimately associated with national and local government problems during the last twenty years could not help seeing its gradual development. War conditions have succeeded in forcing it to the forefront much more rapidly than would otherwise have been possible in peacetime. We have seen evidence quite recently of its application to the fire services of the country, and we are all familiar with the "Civil Defence Regions" which have been in operation since the outbreak of war. We shall see it ere long in the formation of new local government areas. Again Parliament may decide after the war that these wartime regions shall become permanent, and that the time is ripe for the decentralization to such regional authorities of many of the powers and duties now exercised by Parliament centrally from Whitehall.

For these and many other reasons "regionalization" is the order of the day. It is definitely on the move. It may become our conception of the "New Order" or the "New Deal." It is, anyhow at the moment, the vogue or the fashion or whatever you like to call it. Let us hope and pray that "regional areas" for any and every purpose will be conterminous and not overlapping, and, finally, let us give up "kicking against the pricks" and awaken to the fact that the regionalization of hospitals and health services is in reality only part of a great new movement which is bound to come to maturity in the very near future, and, therefore, let us hope the Medical Planning Commission will make a good job of this part of their great task while there is still time for some real hard concentrated thinking.

MEDICAL ADMINISTRATION IN FOUR EUROPEAN COUNTRIES

An interesting meeting was arranged by the London Association of the Medical Women's Federation on June 26 when the subject of medical administration and services in their respective countries was expounded by an Austrian, a Czechoslovak, a German, and a Norwegian. The conditions they described were, of course, those obtaining before 1933 in Germany, before 1938 in Austria, before 1939 in Czechoslovakia, and before 1940 in Norway. Dr. JANET AITKEN presided.

Austria before 1938

Dr. GLATTER, late of Vienna, described the struggle over social insurance in Austria, in particular the economic conditions of the medical profession after the last war, when there was a large surplus of doctors (10,000 in Vienna alone for a population of under two millions); compulsory health insurance covering 60% of the population; no means test, so that any person, however relatively well off, could come under the panel system; and a decrease in private practice to such an extent that only doctors of international standing could earn a living by that means. The professional medical organizations had to fight for recognition, resulting in strikes and lock-outs at certain institutions. Some advantages were presently gained, but not until the law of 1937 did the doctors secure most of their demands, their professional interests being effectively safeguarded. Ironically, however, the law never came into full operation, Austrian social insurance being superseded by the German law.

Pre-Nazi Czechoslovakia

Prof. JULIUS LOWY, formerly of Prague, described medical training in pre-Nazi Czechoslovakia. The student was admitted to the medical faculty of one of the four universities at the age of 18 or 19. The preparation for a medical career cost only about £500, as compared with an average of £1,500 in Great Britain. Everyone, regardless of his means, was given the opportunity to study, but provisions were made to weed out unsuitable candidates. If a student failed in one examination he could sit a second time without formality. If he failed a second time he could only sit by special permission, and if he failed a third time he could only sit again by starting the whole system of his studies *de novo*. It was exceptional for the newly qualified student to set up in practice sooner than two years after qualification; he held hospital appointments for two or three years. The insurance companies did not appoint panel practitioners unless they had held hospital appointments for at least two years and had completed a course in social medicine. Before a man was permitted to specialize he had to spend four or five years in hospital. Prof. Lowy described the system of health insurance, which included specialist as well as general practitioner services, maternity benefit, and hospital charges. Insured patients had free choice of doctor, and they were also able to see consultants and specialists at specified times.

Health Insurance in Germany

Dr. F. W. JACOBSOHN, formerly physician at Virchow Hospital, Berlin, said that in Germany the amount of private practice was very small; 80 or 90% of the population was insured. The income limit for compulsory insurance was 3,600 marks (£180), but there was a large class of voluntary insured persons and also the dependants of the insured who were attended on a panel system. There was free choice of doctor, and patients might be treated by their panel doctor at home or at his surgery or at the hospital. To prevent unreasonable use of the services of panel doctors every prescription cost the insured person 25 pfennig (3d.), though in a case of bona-fide illness the amount was not insisted upon for repeat prescriptions. Differences between the doctors and insurance companies were settled by a body consisting of ten representatives of each side with three deputies from the Ministry of Labour. A panel doctor could not be appointed until two years after he had qualified, and of that two years he must have spent at least three months as assistant to a panel doctor and for six months have been in an institution where he could receive instruction in social and State medicine. The qualification for panel specialists required four years of special instruction in surgery, internal medicine, children's diseases, and urology, or two years in orthopaedics, ophthalmology, dermatology, and venereal diseases, and nervous diseases and psychiatry. Doctors in charge of clinics or out-patient departments were not allowed to hold more than one appointment. The heads of hospital departments received much less pay than their chief assistants, but the latter, unlike the former, were not allowed private practice. Specialists in Germany were not congregated in particular quarters; there was no equivalent to Harley Street in Berlin. Every suburb had its recognized specialists. He added that in recent years there had been a good deal of Nazi dilution. For example, the additional two years after qualification was now interrupted by a compulsory period at a labour camp.

Centralization in Norway

Dr. DEDICHEN, inspector-general of Norwegian Health Service in Great Britain, said that in view of the geographical, social, and economic peculiarities of Norway it was necessary for the State and municipal authorities to take over and centralize very much of the health and hospital work of the country. The 380 public health officers represented about 18% of the Norwegian medical profession. There were still some private hospitals in Norway, some of them run by religious bodies, but they were becoming of less importance. The best of the municipal hospitals were in every respect up to the standard of other countries. The increasing demand for public health services had meant a certain limitation of the principle of free choice of doctor. Public health insurance was on a wide basis, and the numbers of non-insured were small. Reforms needed were a better organization of post-graduate education and a closer collaboration between general practitioners and the hospitals.

In reply to questions Dr. JACOBSOHN said that in Germany dependants were insured at a lower rate of contribution but received less benefits. The doctors did not receive their panel fees directly from the State nor from the insurance companies, but through their own medical organization. There was a ratio between the contribution of the insured person, the fee paid to the insurance organization, and the amount of attendance and service for the patient. Dr. DEDICHEN said that in Norway the income for sickness insurance was derived as to six-tenths from the insured persons, two-tenths from the

State, one-tenth from the municipality, and one-tenth from the employers. Asked how the ordinary patient arrived on the doorstep of the right specialist, Dr. JACOBSOHN said that from youth the German received more instruction about hygiene than in this country; much more teaching was given to girls concerning motherhood and ante-natal care. Parents knew where to send their children suffering from various ailments. In reply to another question, Dr. GLATTER said that there was no difference in Austria between medical men and medical women in rate of payment and opportunities for promotion; and Dr. JACOBSOHN said that it was the same in Germany, where many of the chief assistants in surgical and other departments were women.

AIR-RAID PROTECTION

FURTHER REPORT BY THE HALDANE COMMITTEE

The *Evening Standard* of May 7 reported that the Prime Minister asked Mr. Lloyd George whether he advocated the widespread provision of bomb-proof shelters, or of shelters proof only against blast; to which Mr. Lloyd George replied: "If you do it on a sufficiently large scale you can do it against both." But Mr. Herbert Morrison said in the House of Commons: "We are ready to consider deep-shelter proposals on their merits, but there must be taken into account questions of labour supply, materials, and so on." Whether or not there is shortage of these at present, according to the latest report of the National A.R.P. Co-ordinating Committee time and material have up to the present been wasted in the construction of surface shelters. It has been learnt that not one of a thousand people using a "Haldane" type shelter was injured when a bomb exploded near-by. In some places the public have been forbidden the use of deep shelters already existing, various contradictory reasons being given for these measures. For instance, one shelter used regularly by 2,500 people was at first stated to be unsafe, and yet was later said to be required for essential work.

Protection against Gas

Meanwhile, the question of protection against poison gas is being discussed apart from the problem of shelter against bombs. The Co-ordinating Committee points out that in the official leaflet, "What to do about Gas," people are recommended to "go upstairs," regardless of the fact that bombs may be falling, and that in any case if liquid gas is sprayed the top floor of a house may well become dangerous. There is no mention of whether the shelters should be used in these conditions, or whether people in an Anderson shelter should go to their houses if the rattles sound. In the committee's opinion these anomalies can be overcome only by the construction of large bomb-proof shelters provided with filtered air from outside. The committee further recommends that people should be told that very little gas gets into a room if the doors are closed and there is no draught up the chimney, and that everyone, not only the mothers, should be taught how to adjust babies' protective helmets and how to use the accompanying pump. Among other points brought to the attention of Mr. Morrison are the omission from the leaflet of any mention of the possible need for temporary evacuation of areas suffering from persistent gas attacks, the necessity for rest for those who have been affected by phosgene, and the early treatment of gas casualties. It is considered that fears of blistering should be allayed by giving publicity to the fact that, though a hundred thousand British soldiers were injured in this way during the last war, not one died as a result. The committee also asks that the amount of safety afforded by the ordinary civilian gas-masks against arsine should be made clear. In August, 1938, a demonstration showed that arsenical smokes could penetrate the mask filter. Since then, however, the supplementary "contex" filter has been issued, but no statement has been made about its adequacy in dealing with arsine.

Distress in Bombed Towns

In the midst of this concern for the future, the Co-ordinating Committee is not forgetting the present distress among the homeless in badly bombed areas. Arrangements for feeding the homeless are improving, but are still inadequate. In the Coventry raids of April for instance, the Queen's Messenger convoy sent from London arrived too late to be of any help. People were being advised to boil all water, but there was no water to boil, and many were without gas or electricity; no steps were being taken for emergency supply by such means as, for example, the erection of a few boilers in the streets.

NATIONAL FLOUR: CRITICISMS FROM CHESHIRE

The Cheshire Local Medical and Panel Committee, which has several enterprises to its credit—the "Medical Testament" will be remembered—has been having a brush with Lord Woolton on the question of national flour for bread.

Full-germ Wholemeal Bread

In March, under the stimulus of its honorary secretary, Dr. L. J. Picton, the committee forwarded to the Minister of Food a memorandum urging that genuine wholemeal bread should be made generally available and that the 85% extraction flour which the Ministry had announced, if it contained the full germ, should be the only "white flour" of the future. It was pointed out to the Minister that the removal of the embryo in steel-roller milling is the reason why white bread is never felt to be as satisfying as wholemeal, and why ten loaves of white only go as far as nine of wholemeal. The germ is the only part of the grain which contains oil, the richest known source of vitamin E. The reason for the removal of germ has been to maintain the keeping properties of flour, but in the view of the Cheshire committee if wheat is stored in widely scattered parcels inland instead of at the big silos at vulnerable ports the country miller will get a chance to make wholemeal, which, if it were wanted, could be sieved or "bolted" through wool or silk as was done seventy years ago before the introduction of the roller mills, and such flour could be used at once. Some millers extract the wheat germ, treat it with superheated steam and restore it, but vitamin B_1, of which there is a large proportion in the germ, is destroyed by great heat.

The reply of Lord Woolton, dated April 19, was that millers had been instructed when milling national wheatmeal (of 85% extraction) to take all possible steps to include the maximum amount of germ, and that he was advised that they would not find it necessary to remove the germ for heat treatment and mix it back.

This assurance was gratefully received, but in May there was published a memorandum by the Medical Research Council (*British Medical Journal*, May 31, p. 828) which on two grounds aroused misgiving in vigilant Cheshire. It described two alternative milling processes, one requiring a rearrangement of milling machinery to produce the 85% flour, the other depending upon the addition to the white (73%) flour of "combinations and other fractions." The second was admittedly an inferior method, resulting in a synthetic and unreliable product, but allowable pending an alteration of machinery. In a further letter to the Ministry of Food, dated June 12, the Cheshire committee urged that (1) the genuine 100% meal of the wheat, with neither extraction nor addition, should be made increasingly available; (2) the method of milling the 85% flour by a rearrangement of milling machinery should as soon as possible replace the alternative synthetic method; (3) ordinary white flour should be withdrawn and the 85% flour allowed to do duty as white, "as the sieved wholemeal did up to the unfortunate German innovation in 1872." This innovation, really Hungarian, was the introduction of milling by grooved rollers.

Fortification with Calcium

The other matter which aroused some question was the statement in the Medical Research Council's memorandum that calcium carbonate (as creta praeparata *B.P.*) is to be added to flour, 7 oz. to 280 lb. of ordinary white flour and double that amount to the new 85% flour. The main reason given is that more calcium must be added to diet to maintain a sufficient supply for health. An increased amount has to be added in the case of the 85% flour because that flour contains more of its phosphorus as phytic acid, which the lime is required to neutralize. The Cheshire committee protests to Lord Woolton that once flour is fragmented and deprived of this or that fraction the balance of its nutrients is disturbed, and such an addition as chalk brings in new problems. It also points out the richness of wholemeal in minerals which are deposited just inside the groove or crease in the wheat berry. With stone milling these minerals were ground up with the rest of the flour and contributed to the acceptable taste of the wholemeal, but modern milling is designed to "break the staff," even entirely to eliminate these minerals, which the millers call "crease dirt," resulting in a whiter but insipid flour. A quotation from Leviticus is commended to Lord Woolton: "When I break the staff of your bread . . . ye shall eat and not be satisfied."

Lord Woolton has agreed to publication of this interesting correspondence.

MINERS' PHTHISIS MEDICAL BUREAU

The report upon the work of the Miners' Phthisis Medical Bureau, Union of South Africa, for the three years ended July 31, 1938, states that the general incidence rate of silicosis among the working miners in 1937 to 1938 was the lowest ever recorded. This incidence rate—7 per 1,000—represents a fall of 64% from the figures obtained eleven years previously. During the period under review there was a considerable increase in the work of the bureau, due to the greater number of European miners and native labourers employed through the expansion of the mining industry. The report stresses the need for further control of the dust produced by machine drilling, which is, apparently, the most important remaining individual problem in the reduction of the incidence of silicosis. Three characteristic features in the type of silicosis encountered to-day among the gold miners of the Witwatersrand are referred to. First, it is a condition usually contracted as the cumulative result of many years' previous exposure to the inhalation of siliceous dust. Secondly, it is a progressive disease, and it is the added predisposition to active tuberculosis in lungs containing siliceous dust which is the predominant factor in the ultimate advance of a majority of cases to grave incapacitation or even death. Thirdly, it is also a chronic disease. Cases which are markedly infective from the outset progress rapidly, and the patients may die within the year, but the average expectation of life of those who have contracted the disease in a detectable form is fifteen to sixteen years. Indeed, in many cases the disease may reach and maintain a condition of prolonged or apparently indefinite arrest.

Reports of Societies

SULPHONAMIDES AND BACTERIA IN URINE

At a meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland, with Dr. R. A. Q. O'MEARA in the chair, Dr. P. A. MCNALLY read a communication from Prof. J. W. BIGGER and himself on the action of certain sulphonamide drugs on the growth of bacteria in urine.

They had tested sulphapyridine (M & B 693), sulphanilamide (sulphonamide P, B. W. & Co.), sulphathiazole (M & B 760), and sulphamethylthiazole (M & B 838) on *Proteus vulgaris*, *Bacterium coli*, *Staphylococcus pyogenes*, and *Streptococcus faecalis*, all isolated from the urine of patients suffering from cystitis. *In vivo* the destructive effect was facilitated by the presence of polymorphonuclear leucocytes and *in vitro* by the smooth inorganic walls of the containing vessel. Many workers had found that the *in vivo* efficiency closely followed the *in vitro* action. Strict controls were necessary, especially with *Proteus vulgaris*, which, in the absence of the drug, produced a bactericidal *p*H in the urine in twenty-four hours *in vitro*. The most effective of the four drugs for this organism and for *Bact. coli* was sulphapyridine, and the least effective was sulphanilamide. Sulphathiazole was disappointing against *S. pyogenes*, sulphapyridine being more effective at equal concentrations. Using an artificial bladder, by which it was possible to create to some extent the conditions prevailing in the human urinary tract, the authors found that sulphapyridine and sulphathiazole were more effective than in flasks; the organisms seemed to develop some drug-fastness when acted on by low initial concentrations of the drugs. In the treatment of urinary infections clinicians should determine the causative organism, use sulphapyridine for *P. vulgaris* or *Bact. coli*, arrange the dosage so as to secure the highest permissible concentration in the urine from the start, and make sure that the urine was alkaline.

The CHAIRMAN pointed out the difference between blood and urine in that phagocytic action was almost absent in the latter. The mode of elimination of the drug might vary in different individuals. Mr. T. J. D. LANE said he had found in two cases that no amount of sulphanilamide would sterilize the bladder. Dr. BRENDAN O'BRIEN suggested that it might be interesting to use urine from patients who were being treated with large doses of the drug for pneumonia or meningitis, and see how it compared with simple solutions of sulphanilamide. Dr. EDWARD SOLOMONS asked if infections of the bladder and kidney could be treated from below. Dr. A. R. PARSONS thought that it might be wise to give drugs to increase the alkalinity of the urine.

Dr. MCNALLY, in reply, said that the highest concentration of free sulphonamide in the urine that he had found was 400 mg. per 100 c.cm. The maximum that could be dissolved *in vitro* was 100 mg. per 100 c.cm., so it would be no use to introduce the drug from below. If the *p*H in the bladder could rise to bactericidal limits it would probably damage the bladder wall. *In vivo* the highest *p*H reached in *P. vulgaris* infections had been 8.4.

GROWTH OF COLIFORM BACILLI IN WATER

At another meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland, when the President, Dr. D. M. MITCHELL, was in the chair, Mr. HAVELOCK NELSON read a paper by Prof. J. W. BIGGER and himself on the growth of coliform bacilli in water.

Prof. Bigger had previously declared that these bacilli would sometimes multiply in tap water, especially when it was boiled, autoclaved, or filtered through a Pasteur-Chamberland filter. The statement had been contested by Col. Harold, who had suggested that the growth was due to the filter or rubber connexions of the filter and not to the water itself. The present investigation showed that the water still supported growth when no rubber was present in filtration. The inner dressing of the rubber (talc, French chalk) had proved an excellent medium in distilled water. Growth still occurred when the talc had been roasted in a muffle furnace for several hours. The water, which was carefully tested in controls, did not support growth, nor did the cotton plug, for the organism grew in talc and distilled water if the neck of the flask was covered with an inverted heater. The broth in the inoculum was not the answer, and the sole remaining source of nutrient substances was the atmosphere. A dozen or so other insoluble inorganic substances also supported growth.

The PRESIDENT asked if the organisms, owing to some property in these growth-producing substances, were able to get carbon dioxide and nitrogen from the atmosphere as their source of energy and nutrition. Dr. R. A. Q. O'MEARA said the work was extremely important from the public health point of view. It was possible to train an organism to revert to a primitive metabolism, and these organisms were relying on something even simpler than carbohydrates for their growth, possibly having reverted to a bygone age.

At the annual general meeting of the Society for Relief of Widows and Orphans of Medical Men, with Sir William Willcox in the chair, the report for 1940 was presented and approved. During the year sixty-one widows and three orphans had received £4,642 10s. Owing to enemy action, four of the widows had been compelled to vacate their homes. The total membership of the society is 289, of whom 160 are life members. Membership is open to any registered medical practitioner who at the time of his election is resident within a twenty-mile radius of Charing Cross. Relief is granted only to the widows and orphans of deceased members; widows with a yearly income of over £125 are not eligible for relief. Grants to orphans cease on their attaining the age of 16. Widows under 65 years of age at present receive £65 a year, those over 65 £70, and orphans receive £50. There is a special fund from which grants are made to orphans over the age of 15, to enable them to study for some professional or business career. The grant from this fund is usually fifty guineas a year for five years. Full particulars of the society may be obtained from the secretary, 11, Chandos Street, Cavendish Square, W.1.

Civil Defence workers transferred from the area of their homes and persons attending industrial training establishments away from home are to be admitted to E.M.S. hospitals when they require in-patient treatment, and the cost, after deduction of the patient's contribution, will be met by the Ministry of Health. Transferred war workers admitted to hospital are to receive an allowance of 5s. a week towards such expenses as would not be incurred in their home town.

Correspondence

Wholemeal Bread

SIR,—In the *British Medical Journal* of May 31 (p. 828) the Medical Research Council gave their second memorandum on bread, and set out their specification for national flour of 85% extraction. Apparently they have two criticisms of wholemeal bread: first on account of its roughage and second on account of its keeping properties. The M.R.C. state that it is undesirable to increase the roughage in wartime diets, but they give no grounds for this statement. The only reference I can find in the literature is work by Bickel and Fleischer (quoted by Copping, *Nutr. Abstr. Rev.*, 1939, **8**, 555), who find that wholemeal bread in amounts under 3½ oz. hastens the passage of a barium meal, but in amounts over this tends to delay it. The statement of the M.R.C. requires support, for the bran they propose to exclude contains 7.8 mg. Fe per 100 grammes compared with 1.0 in white flour, which, in these days of anaemia, is of great importance, as the iron is very well absorbed. It must be remembered, too, that until recent years wholemeal was the only meal available and was eaten in double the quantity.

In answer to the M.R.C.'s second criticism of wholemeal, I have seen the interim results of a series of experiments on the keeping properties of wholemeal. Samples from three different sources have been stored in a bakery for six months at a temperature not exceeding 60° F., and at the end of this time were in sound condition. So the statement of the M.R.C. that flour of 85% extraction could be kept under reasonable conditions of storage for four to six weeks *or longer*, though true, is misleading.

The M.R.C. recommend 85% extraction flour and suggest two methods of producing it. Flour (i) is nearer to white flour, but needs changes in milling machinery. Flour (ii) requires no change in machinery, but, according to their specification, is open to variation. The flour is made by adding to white flour the germ and fine bran which have been separated. As some mills do not separate the germ the wheatings from these will contain more bran and less germ. Flour produced from these mills will be darker and contain more roughage than that produced by other mills. It is doubtful, therefore, if the specification given for Flour (ii) justifies the analysis. Nevertheless the M.R.C. recommend the production of this flour, as it can be made without delay. In other words, an 85% extraction flour, which will vary from off-white to the pale brown of wholemeal, is advocated in spite of the fact that it is less nutritive and no easier to manufacture than wholemeal.

The M.R.C. recommend the addition of calcium salts to all wheat flours. When this is done the nutritive values of 11 oz. (the average daily consumption) of each of the three breads are found to be as follows:

	Starch grammes	Prot. grammes	Ca mg.	Fe mg.	Vit. B I.U.	Vit. E mg.
Wholemeal bread + Ca	136	26	340	6.7	310	0.8
85% extraction bread + Ca	142	25	353	4.0	260	0.6
White bread + Ca ..	168	23	267	2.7	70	0.0
Average daily requirements	420	50	670	13.0	550	2.0?

I repeat, therefore, that without further evidence on the action of bran in the alimentary canal the M.R.C.'s case for 85% extraction bread is not a good one. It is significant that in Eire at this moment flour of 95% extraction is the only type allowed to be manufactured for bread-making purposes. In South Africa the Secretary for Agriculture has proposed a standard loaf of 90% extraction.

This, however, is not the whole problem before the Government, for there are large stocks of white flour in the country. The addition of vitamin B is a small step to improve the nutrition of white flour, but the urgent necessity is the addition of Fe. The M.R.C. state that the addition of Fe salts might interfere with the nutritive value of other components of the flour. Perhaps they might obtain some information from Canada or the U.S.A. The Canadian Council on Nutrition and the National Research Council of the U.S.A. seem quite happy about it.

To make this white flour as nutritionally valuable as is reasonable it is necessary then to add imported germ. Ca, and Fe salts. While this is being done the baking machines, which make a large proportion of our bread, can be adjusted for the preparation of wholemeal bread.—I am, etc.,

Leeds, June 30. R. A. MURRAY SCOTT.

Oxygen Administration

SIR,—In your issue of June 28 (p. 980) there is an advisory article entitled "Hospitals and Gas Casualties. Notes on Reception and Management." With regard to treatment of gas cases with oxygen it is stated that "he [the medical officer in charge] should ensure that all those likely to be concerned understand the use of the nasal catheter, the B.L.B. mask, the spectacle-frame outfit. . . ." Other equally efficient methods of oxygen administration are not mentioned. Advisory articles have recently repeatedly excluded all other methods, although in one of the earliest pamphlets—namely, Memorandum No. 5 (England and Wales) Emergency Medical Services—it is admitted (p. 2) that there are other equally effective methods.

In a case of widespread gas attack it seems reasonable to advocate any efficient method since there is certain to be a shortage of apparatus. Among these other methods which have been passed as efficient by clinicians is the box-mask or face-tent method (*British Medical Journal*, 1938, **1**, 1260; *Lancet*, 1937, **1**, 82) and its modifications. A box mask requires no valves and may be made from a cardboard box, sticking plaster, lint, and a rubber tube in ten minutes. The modification of Dr. Alice Rose and Mr. Holmes Sellors (*Lancet*, 1940, **1**, 648) is also readily constructed from materials provided in a hospital. This face-mask method has also been used with success by Mr. T. W. Adams (*Lancet*, 1940, **2**, 474) and the late Dr. E. P. Poulton, and also by well-known specialists in America and in France. In hot climates and out-of-the-way places where rubber and other materials deteriorate rapidly a readily constructed cardboard mask has its advantages. This has been pointed out in Australia.

The recommended methods certainly have their disadvantages and setbacks. They are not particularly becoming. Recently Professor R. V. Christie and Dr. Hadfield (*British Medical Journal*, 1941, **1**, 77) tried to apply the B.L.B. mask and the nasal tubes to a patient, but he refused to wear them. Again, the B.L.B. mask is certainly not wholly fool-proof, unless the mouth is also covered. This has been admitted by those who recommend the B.L.B. mask (*Proc. roy. Soc. Med.*, 1940, **33**, 481). If the mouth is covered as well as the nose, then there is no great difference from the face tent in respect to the area of the face covered. There is also "a valve" (in the latest type, of sorbo rubber) to operate in the B.L.B. mask, and this must impede respiration in the very weak patients.

With the nasal-tube method cocaine is often necessary, but this does not altogether abolish the discomfort due to the irritation of a constant rapid flow of oxygen over the mucous membrane. Again, there is no doubt that the addition of a face tent increases the efficiency of nasal tubes and reduces waste of oxygen.

As the late Dr. Poulton found, there are cases, particularly in children, which can be treated adequately only in some modification of Sir Leonard Hill's bed tent. It might be advisable to keep all available tents at hand.—I am, etc.,

London, N.W.3, June 30. J. ARGYLL CAMPBELL.

Medical Aid for China

SIR,—The China Medical Aid Committee appeal for your interest and assistance to carry on its work.

For four years China has held out against the aggressor and war has produced devastation and destruction, not only of homes and industries but of hospitals, with an increasing number of wounded, sick, and crippled needing medical aid. China, with slender medical resources, has valiantly attempted to deal with this suffering, and Dr. Robert Lim, Director of the Chinese Red Cross, has set up numerous medical units for treating the sick and wounded and for training first-aid workers for the fighting Services; but in China the number of doctors with modern training is few, and in 1939 Dr. Lim appealed to the Western world for help.

In 1939 this committee, in co-operation with a Norwegian committee, sent out some twenty doctors who have now become heads of Red Cross units and are striving with inadequate materials and very little trained assistance to create a medical service in the front line. The Chinese Red Cross, short of funds, asks us to maintain, at least in part, the doctors we sent out two years ago. The following is taken from a recent report to us:

"Moreover epidemics of typhus, typhoid, and relapsing fever have taken terrifying toll. In the absence of qualified people to guide the inhabitants in elementary self-protection, whole families have been wiped out and entire villages and districts have been devastated by such epidemics. Infantile mortality is very high. Over 70% of the population of the North-West suffer from trachoma and this means thousands of blind. Millions of people have not a single doctor to give advice and help to sick and wounded, and there are no medicines to treat disease, prevent epidemics, and protect the newborn."

The army services alone require 30,000 doctors and there are but 5,000 in the whole country. Our contribution to this immense deficiency has been small but it has been appreciated. Dr. Lim, writing to us in March of this year, says, "Let me say how grateful we are here to all of you for still taking an interest in poor China while England is being so battered from the air. It is simply splendid of the British people, and the common aim of our armies to struggle on against aggression and the example given by Britain has given the people of China a new stimulus to fight on."

Please let us have your utmost assistance and let China see that we appreciate to the full, amidst our own troubles, the great service to our cause afforded by her continued resistance to aggression. Your readers' support will be greatly appreciated. Please forward donations to Dr. E. R. C. Hambly, Treharrock, Long Grove, Seer Green, Bucks.—I am, etc.,

London, July 1. HORDER.

Secret Remedies: Loophole in New Bill

SIR,—In connexion with the Pharmacy and Medicines Bill now being introduced in the House of Commons, it would appear that if, instead of making the declaration of all ingredients of a hitherto secret remedy compulsory, the proprietors are allowed to state only so-called active ingredients, an easy loophole will exist for fraud and evasion by dishonest purveyors of certain advertised articles. For example, a secret so-called cure for alcoholism, which the analysis in your publication *More Secret Remedies* showed to contain over 75% alcohol by volume with only minute traces of brucine and strychnine, would on a partial declaration be well calculated to dupe the lay public into imagining they were expending their money on potent medicaments magically blended, whereas they would in reality be purchasing something which, unless controlled by a qualified person, would be actually deleterious to them. It is to be hoped that those piloting the Bill through the House will note and stop this loophole.—I am, etc.,

A. E. CARVER, M.D., D.P.M.,
Nuneaton, June 6. Medical Director, Caldecote Hall.

Tuberculosis in Recruits

SIR,—In a note on detection of tuberculosis among recruits (*Lancet*, 1940, **2**, 518) I expressed the hope that others would publish their findings so that an inquiry could be made into the criteria for reference to tuberculosis officers. This hope has been admirably fulfilled in the paper of Dr. Sidney H. Graham and Mr. Mostyn Davies (June 21, p. 920). Graham and Davies have, however, in my opinion, failed to stress the basic aim of such an investigation. This is not so much how many tuberculous recruits are discovered by reference to tuberculosis officers as how many are *not* detected and are accepted into the Services. Of 1,869 recruits first seen by tuberculosis officers in Wales, 108 (5.7%) had active pulmonary tuberculosis. But how many recruits attended the Medical Boards? And, on the basis of published studies of the incidence of unsuspected tuberculosis, how many among them were in fact suffering from active tuberculosis? I have been told that between 1 and 2% of recruits are usually referred to tuberculosis officers. Even at the higher figure, the 3,049 referred recruits in Wales (including those already known to the dispensaries) would represent a group selected out of about 150,000 men. The incidence of unsuspected active pulmonary tuberculosis in over 100,000 unselected Australian recruits was 0.56% (Galbraith, *British Medical Journal*, 1941, **1**, 699). For well-known reasons this incidence is probably much higher in Wales. But even if we assume it to be 0.56%, the expected cases of active pulmonary tuberculosis among the Welsh recruits would be 840. As only 108 cases were discovered, at the very lowest estimate 732 recruits with active pulmonary tuberculosis were admitted into the Services. Thus the criteria at present used for referring recruits to tuberculosis officers led to the detection of less, and probably very much less, than 13% of the men who might reasonably be expected to have had unsuspected active pulmonary tuberculosis when they attended the Medical Boards.

Graham and Davies do not comment on another interesting finding. Of the 108 active pulmonary cases, 79 (73%) are stated to have been sputum-negative; and I note that among the 573 males aged 18 to 35, other than recruits, referred to the same tuberculosis officers in 1940, 282 (49%) were sputum-negative. If this difference is significant it deserves explanation. And are so many "early cases" really being discovered in Wales? Or are the sputum examinations at the dispensaries necessarily superficial, and is therefore the distinction between "T.B.+" and "T.B.−" merely misleading and should it be dropped?

One more point. Commenting on the significance of a previous "pleurisy" as mentioned by the recruit, Graham and Davies write that among the 3,049 referred recruits, 499 stated that they had had pleurisy; 116 (23%) subsequently developed pulmonary tuberculosis. The figure 3,049 includes the 1,180 recruits already known to the dispensaries. Of more direct interest would be the percentage of tuberculous recruits among those who had given a history of pleurisy to the Medical Board and had *not* previously been seen by a tuberculosis officer. For it seems possible that the group previously seen would have discussed the "pleurisy" with the tuberculosis officer; at the Medical Board later such a history might be given only if it had been "approved" by the tuberculosis officer.

I sincerely hope that the paper by Graham and Davies is only a preliminary communication, and that further study of their valuable material is being carried out by them.—I am, etc.,

Staines, June 23. G. GREGORY KAYNE.

Carriers of Tuberculosis

SIR,—I have just seen Dr. E. Fraenkel's letter in your issue of June 21 (p. 946). My paper in your issue of May 3 was necessarily somewhat compressed for obvious reasons, and I should have liked more space in which to elaborate the thesis of "tuberculosis carriers." Dr. Fraenkel appears to hold the view that all individuals with tubercle bacilli in the sputum have an *advancing* process. In many cases this is clearly untrue, for patients with a positive sputum may be kept under observation for a number of years and may show little or no change in the *x*-ray picture of the chest. Surely these people do not *suffer* from tuberculosis in the same way as a patient who has symptoms of toxaemia or signs of destruction in the respiratory tract, such as cough, sputum, and haemoptysis. I would not regard such patients, in fact, as having active pulmonary tuberculosis, although I would not form an opinion to this effect until the patient had been under observation for many months, but I do not want to split hairs with Dr. Fraenkel or anyone else on this point.

I quite agree that any patient with a positive sputum is a potential danger to himself, and there is not one word in my paper to suggest the contrary. My main purpose, however, was to suggest that patients who might have no symptoms or signs of active tuberculosis may very easily be a menace to others, and I wished to stimulate practitioners in general to have sputum examined for tubercle bacilli much more frequently than is the case at present. Surely it is important that this should be done, as overcrowding and rationing together may quite well increase susceptibility to tuberculous infection. Dr. Fraenkel would, I am sure, admit the existence of typhoid carriers, and such individuals may develop bone abscess or cholecystitis thirty years after their original infection. Presumably in the interval they were not suffering from typhoid fever.—I am, etc.,

London, W.1, July 3. JAMES MAXWELL.

Bacteriology of the Closed-plaster Method

SIR,—I have had opportunity to sample the bacteriological flora of varicose ulcers at a large hospital clinic where treatment has been by enclosure of the whole leg in elastoplast, which is left on, in most cases, for two or three weeks at a time. As in the closed-plaster method discussed by Dr. Jean Orr-Ewing, Mr. J. C. Scott, and Mr. H. D. Gardner (June 14, p. 877), the virtue of this method appears not to be related to the bacteriology as a rule, but would seem to depend on biochemical and physical factors.

Strict aseptic procedures not being possible in such a clinic, cross-infections were seen to occur. Among others, fifteen suitable cases were followed through. *Ps. pyocyanea* appeared suddenly, affecting six cases, then almost died out after about two months. Of five large ulcers which healed particularly well—that is, in two to five months—three showed *Ps. pyocyanea* as follows: (1) *Staph. aureus* was replaced by *Ps. pyocyanea*; (2) *Staph. albus* followed by *Ps. pyocyanea*, and later by *Ps. pyocyanea* with enterococcus; (3) *Ps. pyocyanea* alone; (4) *Staph. aureus* and *citreus*; (5) *B. coli*. But other cases showed average or slow progress in the presence of a variety of organisms including *Staph. aureus*, enterococcus, *B. coli*, *proteus*, diphtheroids, and *Ps. pyocyanea*. *Str. pyogenes* was found in two patients who had resistant and "angry" legs. Direct smears were made and the amount of phagocytosis noted. This bore no obvious relation to progress.

I thank Dr. Stuart McAusland for the opportunity to follow these cases.—I am, etc.,

Liverpool, June 27. JOY CRONIN LOWE.

Discission of Secondary Cataract

SIR,—I read with interest Dr. F. E. Preston's letter (May 24, p. 797) suggesting the use of mydricain before discission after cataract extraction. I have tried this method on a few cases and found it very helpful, especially when the capsule was of a rather dense nature. Mr. Bishop Harman's method of using two Ziegler knives I have found most helpful on many occasions, the disadvantage probably being two penetrating wounds instead of one.

With the present various methods of intracapsular extraction discission is not so common as some years ago. For those who still use the orthodox method of expressing the lens it may be helpful to suggest a procedure which I have found very useful in my own work. This is very simple, and reduces the necessity for needling to a minimum. It is as follows. After using the cystotome to tear the anterior capsule, while this instrument is still in contact with the lens, a side-to-side or rocking movement of the lens is performed. This breaks away the ligament fibres and usually causes the lens to come forward in its capsule. It can then easily be expressed in the usual way, and, to my mind, with less likelihood of loss of vitreous than in the usual intracapsular methods.—I am, etc.,

Norwich, June 23. W. E. RUTLEDGE.

Chemoprophylaxis of Rheumatic Fever

SIR,—I was much interested in your annotation on "Chemoprophylaxis of Rheumatic Fever" (June 28, p. 793). It is queried why, "if rheumatic fever is an infection by the *Streptococcus pyogenes*, the acute stage should not be amenable to sulphanilamide treatment." The probable explanation is that this stage is mainly a manifestation of an allergic reaction occurring in a patient sensitized to the *Streptococcus pyogenes*.—I am, etc.,

Gorseinon, Swansea, June 30. G. E. DONOVAN, Medical Officer of Health.

Local Anaesthesia in Operations for Pyloric Stenosis

SIR,—The admirable article by Mr. David Levi (June 28, p. 963) establishes the main principles in the surgical treatment of congenital pyloric stenosis. There is, however, one point which is not adequately stressed in his account of the technique, and that is the employment of local anaesthesia. My own figures in a series of sixty cases are a clear indication of the value of this form of anaesthesia in this condition. Fifty-three of these were dealt with in the children's ward of a general hospital, while the remaining seven have been operated on in nursing homes or cottage hospitals. Up to 1939 general anaesthesia was employed as a routine, and the results were far from satisfactory. In forty-one cases in this series there were thirteen deaths, a mortality of 31%, which, as Dobbs (*Lancet*, 1941, 1, 661) states, is probably an average figure for general hospitals up and down the country. My own experience bears out his statement that most of the deaths following operation were due to gastro-enteritis. In two cases infants had already returned home but were re-admitted a few weeks later on account of gastro-enteritis which proved fatal.

Since 1939 a total of 19 cases have been operated on with no mortality. The only difference between these two series has been the employment of local anaesthesia in place of a general anaesthetic. These patients have been referred to me by my medical colleagues or admitted directly under my care. Some of them had already been given a trial of "eumydrin" by the physicians, who, on the whole, have been disappointed with the results. A tendency has been noted in the more recent cases to call in a surgeon somewhat earlier than during the first series, when eumydrin was being given a trial, but apart from this there has been no distinction in the treatment in the two series, and the markedly improved results must, I feel, be attributed in great measure to the use of local anaesthesia. I have no doubt that a general anaesthetic in these cases predisposes to a subsequent gastro-enteritis.

By making a small high incision in the midline over the liver there is no danger of small intestine or omentum prolapsing out of the wound if the infant strains, while the judicious use of a teaspoonful of honey usually keeps the infant perfectly contented throughout the operation. Dobbs's suggestion that the risk of a long stay in hospital may be counterbalanced by the adverse effects of operation is answered by Levi's demonstration that operation under local anaesthesia, certainly in breast-fed infants, has no adverse effects.—I am, etc.,

Wolverhampton, June 30. R. MILNES WALKER.

Differential Diagnosis of Contusion of the Brain

SIR,—In reply to Dr. Murdo Mackenzie's letter (June 28, p. 985), of course a psychoneurotic may complain of headache just as he may complain of pain or distress in any other organ or region of the body, but it is neither a characteristic nor a diagnostic symptom of the condition. On the other hand, severe headache in our series of cases following a definite history of concussion was the outstanding and disabling feature, often dominating the whole picture. The attitudes of the two types of sufferer to the symptom are quite different. The contused person regards his headache as itself constituting essentially the disorder, and it is the symptom for which he is most anxious to obtain relief. The neurotic, on the other hand, if he does mention headache, does so only as one symptom of a general state of distress, which he often has difficulty in describing. The contused person nearly always states that he is improving and he is hopeful; the condition of the neurotic is usually static. The condition of a contused person—at the interval of three to five months from the exciting trauma—may often be described as still subacute.

The "forgetfulness" in contusion is also quite different from the occasional inattention which leads many of us—neurotic or otherwise—to leave umbrellas in omnibuses. The contused person complains of forgetfulness spontaneously as a *new* symptom. A housewife, for instance, finds that she must make a list of everything she goes out to buy—a thing she has never had to do before. Sufferers from this condition create the impression that they are still slightly dazed or not fully aware of their surroundings. Also they are less emotional and less concerned about their emotions than the neurotic. For these reasons it would not be characteristic for a contused person to say he "feels such a fool" for forgetting things: he is not thinking of other people. The neurotic, on the other hand, acutely sensitive to the attitude of others about him, might well make such a remark.

Each of these differences may seem small by itself, but collectively they make two pictures which are readily distinguishable in a large proportion of the cases.—I am, etc.,

London, S.W.11, July 1. WILLIAM A. BREND.

Paralysis accompanying Herpes Zoster

SIR,—In view of the recent correspondence in your columns regarding paresis associated with herpes, the following case would seem to be sufficiently unusual to merit mention, and serves still further to indicate the connexion between herpes and a generalized blood-stream infection.

A man aged 53, who works as a postman, has suffered from mitral disease for many years; in March, 1938, his heart began to fibrillate. This has been more or less controlled by tab. digit. pulv. for the past three years, but early in January, 1941, he had an attack of pulmonary congestion. This showed signs of clearing up by the end of the month, and on February 5 he felt better, breathing was easier, but there was still some tachycardia. On February 12 the heart sounds were steadier and the pulse rate slower, although the uneven beats of fibrillation were still present. He also complained on that day of a dull pain in the front of the right thigh, which in view of his rheumatic history I took for a myalgic pain. He returned home, and tells me that two days later (February 14) the sore area in front of the right thigh began to burn, became more red, and by the morning of the 15th blebs had begun to appear. He visited a colleague, who diagnosed herpes zoster. On the 16th a few spots appeared on his chest, face, and forehead. On the 18th he came up to see me, and showed an extensive herpetic eruption over the inner side and front of the right thigh, with a few isolated blebs below the knee and in the sacro-iliac region (L2 and L3); while, in addition, he showed a well-marked eruption resembling varicella extending over the body, limbs, and head; several of the pocks on the chest had reached the pustular stage, while those on the face were vesicular and on the forehead papular. By March 1 the herpetic vesicles had dried and some of the scabs were separating, while the varicella pocks were drying up. The patient also complained of weakness of the affected leg, the thigh muscles had lost tone, and the right knee-jerk could not be elicited. By March 10 most of the scabs of the herpes and of the varicella had dropped off, but the weakness of the knee was still marked and the right knee-jerk still absent. He developed almost complete paralysis of flexion of the right hip by the ilio-psoas, of the sartorius, and most of the quadriceps and adductors of the thigh. He was seen on April 2 by Dr. Wilfred Harris, who reports: "I took his electrical reactions myself and found complete reaction of degeneration in the vastus internus and externus and the lower half of the rectus, although the upper half of the muscle reacted normally to faradism. R.D. was almost complete in sartorius and the adductors." Massage and galvanism were given for a month and later followed up by faradism and exercises during May and June. He has made a good and gradual recovery, so that walking is now almost normal and he is taking up a light inside duty this week.

In view of Professor J. A. Nixon's remarks (July 5, p. 31) on herpes generalisatus this case seems worthy of mention, and the recovery after such a severe loss of muscular activity is very encouraging. I presume the damage to the motor fibres is at the point where the anterior roots join the posterior roots just peripheral to the ganglion.—I am, etc.,

London, W.1, July 5. R. COVE-SMITH.

Subcutaneous Ligature of Veins

SIR,—Dr. H. S. Russell (April 26, p. 626) described a method of subcutaneous ligature of veins. For several years I have been using a similar technique for the resistant type of case. It seemed unnecessary to take up your valuable space in adding my testimony to Dr. Russell's or in amplifying his excellent article, but since then some ill-founded criticisms have been made, and I therefore thought that it might be useful to add my experiences in support of Dr. Russell's method.

I have done a considerable number of cases and have never had any complication of any kind. I do not insert the suture by means of a sewing needle, with the necessity for drawing a double thread through the tissues, but I use the hypodermic method of suturing first described, I believe, by Dickson Wright. I inject some novocain into the skin and then advance the hypodermic needle under the vein, at the same time injecting a little solution; a little more novocain is injected under the skin on the far side of the vein and a moment allowed for it to anaesthetize the skin; the needle is then pushed out through the skin; the syringe is disconnected, and a suture is threaded through the needle like a stylet; it is usually easier to pass the suture from the point of the needle. The suture is then tied over a little piece of sterile gauze, a small elastoplast dressing is applied, and the vein is injected below this level; or the suture can be left untied for a moment and the vein injected by the empty vein technique, and then the suture is tied. It is of course wiser to have the patient lying down when passing the sutures.

A troublesome vein can be ligatured in several places and the "locks" between emptied before injecting. In this way, also, a "deep feeder vein" can be isolated and its cause of failure eliminated.

By this method I have successfully treated many cases that have been submitted to me by doctors who have stated that "injection has failed to cure these veins." I am convinced that with reasonable care the method is devoid of risk and is a valuable addition to one's technique.—I am, etc.,

Hove, July 3. H. J. MCCURRICH.

SIR,—I have read with interest the article by Dr. H. S. Russell (April 26, p. 626) and the criticism of it by Stuart McAusland (May 17, p. 763). Subcutaneous ligature of varicose veins was first described by Velpeau and Schede and was soon given up. It was reintroduced and strongly favoured by Kocher (1916), who, in the case of widespread varicose veins, inserted 100 and sometimes more subcutaneous ligatures. Soon after Linser introduced the treatment of varicose veins by injection with sclerosing fluid, a combination of ligature and injection was employed by many surgeons.

Dr. Russell's method is harmless and painless, but it is not much more effective than injections properly done without ligature. Neither the method of injection alone nor in conjunction with subcutaneous ligature should be used in cases where a positive Trendelenburg sign is present. A positive Trendelenburg sign demands open ligature of the vein near the saphenous opening and the removal of the saphenous trunk in the thigh.

I have found that the best operation is the removal of the vein by Babcock's method followed by injection of the varices in the leg, but I should like to draw attention to a method which I employed in many thousands of cases with excellent results: The vein should be sought for in the lower part of the thigh with the patient standing upright and its position marked. The patient then lies down with the leg slightly elevated. The vein is gently exposed, using 10 c.cm. 2% novocain. The vein is then divided between ligatures. The distal part of the vein is opened and a blunt Horrocks's or Barley's cannula is introduced and fixed in position by means of a ligature. (I use a special curved cannula with a stopcock.) Through the cannula varying amounts of sclerosing solution may be injected depending upon the extent of the varices. I use 66% glucose in quantities up to 50 c.cm. The wound is closed by two catgut sutures and the limb bandaged firmly. This completes the simple operation, which can be easily performed with aseptic precautions in the surgery or in the patient's home. This procedure gives the only guarantee against recanalization. Recurrence is rare.

I quite agree with Dr. Russell that every effort should be made to treat varicose veins adequately, and surgeons should try to find better and still better methods of doing so.—I am, etc.,

Bradford, July 1. NORBERT SCHICK, M.D., Vienna.

Ether Convulsions

SIR,—After reading Mr. Charles Wells's letter (June 21, p. 945), I thought it might be of interest to describe a case which came under my notice to-day in the Willesden General Hospital.

A woman of 32 had a laparotomy performed for a uterine fibroid. I used the McKesson CO_2-absorption apparatus and the anaesthetic was perfectly smooth until the time arrived for sewing up. I noticed slight spasm of the lower jaw, which did not persist, so I ignored it. However, about five minutes later spasm returned not only in the jaw but in the legs and arms. The respiration was in character like that described in Dr. Wells's letter. I was using ether in moderation with the indicator at "half." The bag was kept inflated with nitrous oxide, and the oxygen indicator stood at 4 or 6 according to the degree of cyanosis. The colour kept uniform throughout except for slight cyanosis, but this increased when the convulsions started. The pulse was of good volume, regular, and

100 to 104 in rate during the spasm. The rectal temperature was 100.4° F. There was no marked sweating of the face.

After removing the face-piece I gave chloroform, about 1/2 to 1 drachm, very cautiously in drops on a mask until the house-surgeon, Mr. Freeman, prepared 5 c.cm. of pentothal sodium. He injected 4 c.cm. as soon as possible into a vein and immediately the convulsions ceased. He gave a further 1 c.cm. after a few minutes' interval. The operation was then completed. The patient left the table with both pupils widely dilated but with normal shallow respirations.

On reaching the ward the respiration became very shallow, almost Cheyne-Stokes at intervals. On the suggestion of the house-physician, Dr. Gladstone, I gave oxygen with 5% CO_2. This after a time improved the breathing, and at long intervals the patient made a deep inspiration. All this time the pupils remained dilated, but they gradually became smaller. The pulse varied in volume but kept regular. Artificial respiration seemed to help in dispelling cyanosis while it lasted, but gradually the colour became normal after more O plus CO_2. I saw the patient about one hour later, when there was slight conjunctival reflex, but she was still unconscious. Three hours later consciousness had returned and the patient smiled and could talk.

The premedication was omnopon grain 1/3, scopolamine grain 1/150, an hour before operation.

The cases I have seen have all occurred in hot weather; fortunately none of them has been fatal.—I am, etc.,

Willesden, June 23. C. LEONARD TRAYLEN.

SIR,—Mr. Charles Wells (June 21, p. 945) has described a case of novocain convulsions in a letter concerning "ether" convulsions. This is unfortunate because novocain convulsions are no mystery, although it seems to be insufficiently known that cocaine and all its derivatives convulse as certainly as does strychnine. On the other hand, "ether" convulsions are a great mystery still, for how are we to explain convulsions produced by a large dose of a narcotic drug?

Hyperthermia is an attractive theory, and I may be forgiven for possibly overstressing it, because it is so reasonable and so kind to keep the feverish patient cool during an operation in a heat wave. With a high temperature from a septic appendix it is not wise for the child to wear thick bed socks, be covered with blankets and mackintoshes, and to be deprived of all sweating defences by atropine.

It is of the utmost importance that the rectal temperature of all these cases be taken. As the fits are easily controlled by evipan intravenously, the abdomen should be sewn up and the rectal temperature taken when all is quiet. If it is high—and I think it is invariably—then steps can be taken to reduce it and to cool the carotid blood to stop cerebral damage and possibly a return of fits when the evipan has worn off. The fortunate thing is that evipan or pentothal is good for all fits except those due to uraemia.—I am, etc.,

A. DICKSON WRIGHT, M.S., F.R.C.S.

London, W.1, June 30.

Treatment of Gonorrhoea

SIR,—The emphasis laid on the treatment of gonorrhoea by sulphapyridine when two articles deal with that disease in the same issue of the *Journal* (June 28) is liable to create a somewhat wrong idea as to the value of the treatment.

Major MacKenna's article (p. 958) deals with gonorrhoea in men specially selected for healthy physique, and it is well known that the healthier the man the shorter is the life of the gonococcus in his system. Secondly, these men are in a position to report at once and have a rest from their daily arduous duties. Thirdly, they are at once put on an alkaline dietary. In spite of all the costly treatment outlined by Major MacKenna the relapse rate is as high as 5%.

In Dr. James Sommerville's report (p. 961) the relapses were as high as 6.66%, and complications occurred in 1.66%, while toxic symptoms occurred in 13%. These results are in striking contrast with those of Major MacKenna, but they are very instructive and therefore of value. Dr. Sommerville speaks only of alcohol as interfering with successful treatment, but he does not give any reasons why this should be. Alcohol, as is well known, tends to increase the patient's *p*H, which in Major MacKenna's patients was countered by the alkaline dietary. The part played by an increased *p*H in delaying recovery of all diseases is of great importance and deserves the serious attention of the medical profession. The predisposition of persons to tuberculosis and acute rheumatism depends on whether their *p*H is increased or not, and it is hardly necessary to say that gonorrhoea in tuberculous patients is not "cured" in three days, while the tendency to complications is intensified very considerably. Good treatment can be successful only by helping the patient's constitution to re-right itself.—I am, etc.,

Swansea, June 28. G. ARBOUR STEPHENS.

Anatomical Nomenclature

SIR,—Please allow me to suggest that it would be well for authors of medical and (particularly) surgical textbooks who, as most of them did, learnt their anatomy with the students of the last generation, to bear in mind that, wisely or unwisely, anatomical nomenclature has now largely been changed.

Studying Mr. Hamilton Bailey's excellent *Emergency Surgery*, I came across the term "cave of Retzius," for which, wishing to confirm my memory of its identity, I searched in vain the text and index of Gray's *Anatomy*, latest edition. Correspondence with the editor of the latter showed that he strongly disapproved of the retention of personal names in anatomy, and preferred the new term, "retropubic pad of fat," which, of course, signifies not the "cave" but its contents. Many other examples of the same nature might be quoted. Apart from the confusion thus caused to those who, like myself, learned their anatomy twenty-five or so years ago, it seems to me (if I may venture to express an opinion) a great pity that, by the elimination of proper names, the historical aspect of anatomy should disappear. I challenge any medical man to read Fielding Garrison's *History of Medicine* without acquiring a renewed and even thrilled interest in his profession.

Meanwhile I would suggest that authors using old names should add the new ones in parentheses.—I am, etc.,

May 20. JOHN S. MEIGHAN, M.B., Ch.B., B.Sc., Surgeon Lieut. R.N.V.R.

Universities and Colleges

UNIVERSITY OF OXFORD

The Weldon Memorial Prize for 1941 has been awarded to Julia Bell, M.A., F.R.C.P., Honorary Galton Research Fellow of University College, London, and member of the scientific staff of the Medical Research Council.

UNIVERSITY OF CAMBRIDGE

Owen Lydon Wade (Emmanuel College) has been awarded the Marmaduke Shield Scholarship in Human Anatomy, of the annual value of £100.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—F. C. Deller.

M.B., CH.B.—[1] [3] [4] N. B. Jones, [2] [4] B. B. Evans, [2] [3] N. O. K. Gibbon. *Part III:* Katharine E. Ainsworth, G. M. Ardran, W. W. Aslett, Aileen M. Barry, W. H. Berry, R. S. Cook, R. T. Davies, J. A. Donnellan, C. V. Donnelly, B. K. Ellenbogen, J. J. Ennitt, H. E. D. Flack, H. W. Forshaw, G. L. Gamble, A. J. Goldman, H. R. Gray, J. J. Hargadon, I. J. Harris, J. H. Hughes, Lillie L. Jackson, Katie H. Jones, Mair E. Jones, W. J. Jones, Mary Jordan, A. C. Kirby, C. A. Kovachich, C. C. Laird, T. E. Lamb, D. Leslie, T. B. McMurray, M. Makin, Lucy D. Meyrick, E. L. Moore, J. Moorhouse, P. P. Newman, J. A. B. Nicholson, J. D. F. Norman, C. N. Partington, D. E. Paterson, H. C. Percy-Hughes, G. H. Pimblett, Joan E. M. Potts, A. G. Rickards, F. S. Rickards, M. Rosenthal, C. N. Samuell, G. D. Scarrow, G. L. Shatwell, J. M. Swithinbank, W. G. Taaffe, E. Walker, C. W. Walton, A. S. Whitehead, J. K. Wilson, J. Winter, F. J. Zacharias. *Part I:* Mary A. R. Allan, A. S. Beadel, R. A. Blyth, W. G. Canning, J. F. Ferguson, E. N. Hugh-Jones, E. D. G. Kirkwood, Jean C. Miller, E. W. Parry, J. S. Redfern, [5] J. V. Shepheard, [5] G. H. Thomas, K. B. Thomas, Doreen M. Watt. *Passed in Separate Subject:* F. E. D. Griffiths (Pharmacology and General Therapeutics). *Part II:* G. W. Gibbs, F. E. D. Griffiths, R. B. McConnell.

[1] First-class honours. [2] Second-class honours. [3] Distinction in surgery. [4] Distinction in obstetrics and gynaecology. [5] Distinction in pharmacology and general therapeutics.

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

M.D.—P. R. Evans (by thesis), J. A. Hobson (by examination).

M.B., CH.B.—E. P. Abson, R. G. Balf, J. Ball, E. A. Cachia, D. M. Coates, B. O. Dowdell, B. I. Eames, Jeanne M. Edwards, E. Feinmann, A. Glass, J. C. Greenwood, P. G. Griffiths, E. G. Hall, Frances A. Hepburn, Margaret Jacques, R. P. Jepson, Susanne M. Lempert, D. C. Little, F. S. Mooney, T. E. Parry, *S. S. Rose, J. Thompson, Vera Waine, F. R. Wilde, †L. Wise, B. Wolman, P. B. Woolley. *Part I (Forensic Medicine and Hygiene and Preventive Medicine):* ‡Alice Akred, G. Ashe, A. N. Ashworth, Shirley G. Barrett, Pauline Blockey, H. Bolton, H. A. Boydell, D. M. Brierley, W. E. Broughton, Kathleen M. Brown, P. Cliff, J. G. Coburn, D. G. Crawshaw, Betty J. Dakin, Sheila Egan, D. Eglin, C. J. L. Elsdon, Nora F. M. Falk, S. Falk, A. I. Goodman, S. Grace, R. Greenwood, N. Harris, K. Heap, Mary W. P. Huddart, Esther Jackson, W. H. Lonsdale, R. L. Lunt, C. W. Marsden, R. W. T. Mason, Ann L. Pinson, Ethel J. Samuel, Eileen T. Sloane, H. F. Smith, O. C. Sugden, D. Sutton, M. Swerdlow, R. H. Townshend, Margaret Wade, A. E. Wall, H. C. Warrington, J. Whewell, J. K. Wright.

* Second-class honours. † Distinction in medicine.
‡ Distinction in forensic medicine.

UNIVERSITY OF ST. ANDREWS

At a graduation ceremony on June 27 the following medical degrees were conferred:

M.D.—R. Y. Dunlop, Jean L. Hallum.

M.B., CH.B.—*Nancy Young, *K. G. Lowe, *A. W. K. Main, *E. L. McQuitty, *Laeticia J. W. Douglas, *Anne M. Wood, *Gwendoline M Sturrock, Mary O. Adams, Margaret C. Barnet, Elizabeth S. Bayne, S. C. Chatterji, F. E. Clynick, A. Everard, Joyce M. Fleming, R. S. Flynn, J. O. Forfar, Philippa E. Gaffikin, Sheila Graham, J. S. Law, A. MacKenzie, R. S. MacKenzie, A. MacLean, F. A. Macrae, J. M. S. Manson, N. Paton, J. M. Robertson, Kathleen Robertson, Constance F. Ross (*née* Reed), A. E. D. Sanjana, Agnes G. Swales (*née* Brough), K. A. Swales, A. K. Tulloch.

The William Low prize for the most distinguished student was awarded equally to Nancy Young and K. G. Lowe.

* With commendation.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Election to the Council

On July 3 four Fellows were elected into the Council to fill the vacancies caused by the retirement in rotation of Professor A. H. Burgess, Mr. H. S. Souttar, and Mr. V. Zachary Cope, and by the death of Mr. R. C. Elmslie. The result of the poll was as follows:

	Votes
ARTHUR HENRY BURGESS (Manchester)	608
HENRY SESSIONS SOUTTAR (The London Hospital)	604
VINCENT ZACHARY COPE (St. Mary's Hospital)	528
ERNEST FREDERICK FINCH (Sheffield)	492
Philip Henry Mitchiner (St. Thomas's Hospital)	480
Sir Harold Delf Gillies (St. Bartholomew's Hospital)	467
Reginald Martin Vick (St. Bartholomew's Hospital)	429

In all 1,097 Fellows voted; in addition seven votes were found to be invalid. Professor Burgess, Mr. Souttar, and Mr. Cope are all elected for the full period of eight years, and Mr. Finch acts as substitute member for the late Mr. Elmslie until July, 1946.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—J. A. Dodds, M. El Badri, D. A. Ogden.

MEDICINE, PATHOLOGY, AND FORENSIC MEDICINE.—G. R. Boyes, D. A. Ogden.

MIDWIFERY.—D. A. Ogden, J. M. Macdonald, J. Mason, Le R. D. Miller.

The diploma of the Society has been granted to D. A. Ogden.

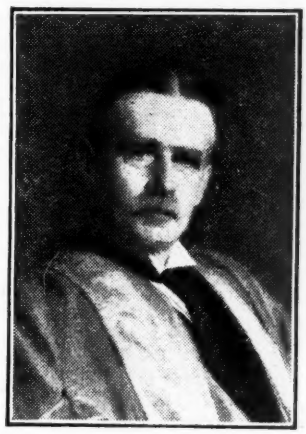
Three additional Sigmund Freud fellowships for psychoanalytical training have been announced by the Boston Psychoanalytical Institute. The fellowships will begin in September, 1941, and are open to graduates of recognized medical schools who have had at least one year's work in general hospital training and two years' work in psychiatry.

Obituary

SIR FREDERIC STILL, K.C.V.O., M.D., F.R.C.P., LL.D.

Physician Extraordinary to the King; Emeritus Professor of Diseases of Children, King's College, London

George Frederic Still was born in London in February, 1868. From Merchant Taylors' School he went up to Caius College, Cambridge, and thence to Guy's Hospital. At Cambridge he gained first-class honours in the Classical Tripos and was Winchester Prizeman. At Guy's he was house-physician in 1894 after taking the M.B., B.Ch. degrees, and in the same year won the Murchison Scholarship of the Royal College of Physicians of London. Early in his career Still decided to specialize in medical diseases of childhood, and he was appointed assistant physician at the Hospital for Sick Children, Great Ormond Street. In 1896 he was awarded the Cambridge M.D. for his thesis on "A Special Form of Joint Disease met with in Children." The substance of this appeared in the first edition of Allbutt's *System of Medicine*, 1897, Vol. III. It was a short article of five pages, but it introduced to the medical world a form of disease previously unrecognizable which became known, as it is to-day, as Still's disease. He defined the condition as a chronic progressive enlargement of joints associated with enlargement of lymphatic glands and spleen, coming on before the second dentition.



In 1899 Dr. Still was appointed physician for diseases of children at King's College Hospital, the first hospital with a medical school to establish a special department for diseases of children, and in 1906 King's College, London, made him its first professor of diseases of children. At the Royal College of Physicians, of which he became a Fellow in 1901, Still was Goulstonian Lecturer (1902), Lumleian Lecturer (1918), FitzPatrick Lecturer (1928 and 1929), and Censor (1932-3). For three years he was the chairman of the Medical Board at King's and a valued member of the committee of management of the hospital. In 1905 he joined Sir James Goodhart in preparing the fifth edition of his former chief's well-known *Diseases of Children* and continued as co-editor until 1909, when he published on his own account a textbook, *Common Diseases of Children*. This was based on lectures he had given at King's College and Great Ormond Street Hospitals, with considerable additions. His theme was the everyday and the commonplace diseases which bulk most largely at a children's hospital and in the routine work of the private practitioner. The book, being very practical, met with immediate success and reached a fifth edition in 1927. He contributed to Allbutt and Rolleston's *System of Medicine*, 1907, Vol. III, an article on congenital hypertrophy of the pylorus. It was a concise and clear consideration of a disease first described by Samuel Gee, which, thanks in part to his own observation, was being recognized much more often than in earlier years. In 1919 he contributed to the Osler Birthday Volumes an article on "Some Seventeenth Century Writings on Diseases of Children," in which he paid tribute to the value of books by Francis Glisson and Walter Harris, physician to Charles II, and Thomas Sydenham's work on

chorea was of course not forgotten. The subject of his FitzPatrick Lectures before the Royal College of Physicians was "The History of Paediatrics in the XVIth and in the XVIIth and XVIIIth Centuries." In them he amplified his paper in the Osler Birthday Volumes, but even then he found that there was much more in the subject than two lectures could satisfactorily encompass, and in 1931 there came from his scholarly pen *A History of Paediatrics*. This surveyed progress in the study of disease of the child up to the end of the eighteenth century, with a wealth of reproductions of title-pages and illustrations from old books and portraits. He was elected first president of the British Paediatric Association, and similar societies in the United States and Canada made him an honorary member. Very interesting lectures given by him at Birmingham in 1927 under the Ingleby Trust dealt with "Place-in-family as a Factor of Disease." A short paper on "Infantile Scurvy: Its History" appeared in the *Archives of Disease in Childhood* for August, 1935, with other articles bearing on the importance of Thomas Barlow's discovery in 1883 of the true nature of that disease. This special number of a journal with which Still had close connexion as chairman of its Editorial Committee was produced in honour of Sir Thomas Barlow's ninetieth birthday. Dr. Still's contribution indicated how near earlier writers had got to the truth and yet how they missed the essential feature of the deficiency nature of the disorder. He kept up his interests in classics, and in 1931, on the centenary of King's College Medical School, wrote in Latin verse "Carmen Scholae Medicinae," which was set to music and sung at the celebrations. In 1932 at the Centenary Meeting of the British Medical Association he was president of the Section of Diseases of Children, and next year presided over the International Paediatric Congress held in England. His long period of fruitful service to Great Ormond Street Hospital was recognized by election as consulting physician. He had also been for many years consulting physician to the Infants' Hospital, Vincent Square, to Dr. Barnardo's Homes, and to the Society for Waifs and Strays. The National Association for the Prevention of Infant Mortality had the benefit of his chairmanship for twenty years.

In 1934 Dr. Still was awarded the Dawson Williams Prize (founded in memory of the late Editor of the *British Medical Journal*) in honour of his work for sick children. When he retired from hospital duties King's College and its Hospital elected him emeritus professor and consulting physician, and a widely supported project was set on foot to pay tribute to "a great physician and lover of children." This took the form of a presentation portrait by Gerald Kelly, R.A. (reproduced on the preceding page), and the endowment of a "Dr. Still Cot" at King's College Hospital.

Sir Frederic Still was created K.C.V.O. among the Coronation Honours of 1937 in recognition of his life-long devotion to the welfare of children and his personal services to the Royal Family. In the same year he became Physician Extraordinary to the King, and was elected an Honorary Fellow of the Royal Society of Medicine. The University of Edinburgh also honoured him with the degree of LL.D.

A correspondent writes:

Handsome of feature, slight of build, with a grave courtesy all his own, George Frederic Still warmed towards a child, and if its mother tried him he bore with her in a spirit of fortitude and forbearance. His own widowed mother was his dearest friend and they lived together until her death at an advanced age broke the happy union. It was charming to see them on their way to church on Sunday, she supported on his arm, he in spruce frock-coat holding the Prayer Book and Hymnal. The waiting-room at the old house in Queen Anne Street had a grand assortment of toys to beguile or soothe the young people before their turn came to enter the presence of the doctor with the quiet manner and sweet smile. Many of us remember him as a businesslike chairman, graciously but firmly keeping his committee to the point. Dr. Still never flinched from duty, and his life was filled with tender thought for all sick or unhappy children. Now he has gone to his rest, and we are the poorer; but the influence he wielded is not cut off by death.

J. R. DICKSON, O.B.E., M.B., C.M.

Secretary, Trinidad and Tobago Branch, B.M.A.

A correspondent sends the following appreciation, which supplements the obituary notice published on June 28.

John Rhodes Dickson, whose sudden death on April 8 is deplored by everyone in Trinidad and Tobago and most of all by his colleagues, was born seventy-four years ago at Arouca, Trinidad, where his father, the Rev. W. F. Dickson, was minister of the Presbyterian Church. He was educated at the Queen's Royal College, Port of Spain, where he won an Island Scholarship in 1884, and at Edinburgh University. He joined the Government Service in 1891, and after serving as assistant surgeon at the Colonial Hospital and holding acting appointments in country districts, he decided to specialize in public health work. It is largely due to his efforts that the Government came to recognize the value of public health, and the Public Health Service, which is now full grown and working well, is the result of Dickson's constant and untiring efforts. He was the first pathologist and bacteriologist for the Colony, and was also largely responsible for checking epidemics of yellow fever and bubonic plague in 1907-8. These diseases have never reappeared. He was in England on leave in 1914 and was taken by the War Office and attached to the R.A.M.C. for six years. On his return to Trinidad he was appointed Deputy Surgeon-General and Senior Medical Inspector of Health for the Colony. He frequently acted as Surgeon-General. He retired from the Service in 1930 and was awarded the O.B.E. He was then appointed lecturer to the Imperial College of Tropical Agriculture, which post he held until 1939. After Dr. K. S. Wise, the Surgeon-General, retired the Government showed their appreciation of Dickson's sterling qualities and appointed him chairman of the Bruce Stephens (Charitable) Trust. For years he had been vice-president and mainstay of the Child Welfare League. He had been a useful member of the Council of the Medical Board of Trinidad and Tobago and was its vice-president.

Besides these activities, enough for any one man, Dickson must be remembered as the one who worked hardest at reviving the almost defunct Branch of the B.M.A. and with zeal and unceasing labour as Branch Secretary. He attended the annual meeting at San Fernando on April 5. He seldom missed the Annual Meeting of the B.M.A. when in England. Island-wide tribute was paid to the passing of a distinguished son of Trinidad who had always kept in the forefront of his thoughts and actions measures for the advancement of public health, child welfare, and alleviation of distress, and the welfare of the profession. A lack of show, characteristic of Dickson, hid the true extent and range of his work and sympathies.

Dr. K. S. WISE writes:

As we were, for two years, very closely associated in the administration of health affairs in Trinidad, I am glad to pay my tribute to Dr. Dickson, whom I regarded very highly as a professional colleague and even more so as a friend of exceptional charm and character. He was a man to whom his word was often more than his bond. To assign him some important duty was to know that it would be well and thoroughly completed with a conscientious regard for each and every detail as well as a careful consideration of the broad and fundamental principles. This is well illustrated by his early realization that success in the administration and efficiency of public health measures required not only a high degree of technical skill but also a well-trained local personnel and a liberally instructed public. Much of his earlier professional career was spent in the organizing and effecting such training and public instruction. His efforts certainly induced in the public mind a healthy sensitiveness to sanitary matters in general and brought into being a valuable and experienced body of associated medical personnel. His success in this hitherto virgin field in the early years of this century are well known to those familiar with health affairs in Trinidad. Needless to add, this shining example had its effect beyond the confines of Trinidad in other areas in the West Indies. With the passing of Dr. Dickson the Island of Trinidad has lost a skilled professional colleague, a generous and kindly friend, and an unselfish, public-spirited citizen.

W. PARRY MORGAN, M.D.

Lecturer in Bacteriology, Welsh National School of Medicine

We regret to announce the death on June 14 of Dr. W. Parry Morgan, well known as a bacteriologist in Cardiff, where he held important public and academic posts.

William Parry Morgan was a native of Cardiff and most of his working life was spent there. From the University College of South Wales and Monmouthshire he entered Clare College, Cambridge, where he won the Lady Clare scholarship and was 16th wrangler in the Mathematical Tripos of 1898; he went on to study medicine at St. Mary's Hospital with a university scholarship. Having taken the degree of B.Sc.Lond. and the M.R.C.S., L.R.C.P. diplomas in 1904, he served as house-surgeon, house-physician, and resident obstetrical officer at St. Mary's, took the M.A. and B.Ch. at Cambridge in 1906, and the M.B. in 1908; for his M.D. thesis in 1917 he was named proxime accessit for the Horton Smith prize.

From 1908 to 1914 he held the post of assistant in the department of therapeutic inoculation at St. Mary's Hospital, but this was interrupted by a year's work in South Africa as research bacteriologist under the Witwatersrand Native Labour Association, for whom he prepared jointly with Sir Almroth Wright in 1913 a report on pneumonia. During the last war Dr. Parry Morgan held a temporary commission as captain in the R.A.M.C., working mainly in laboratories. He was then appointed pathologist and bacteriologist at the Glamorgan County and Cardiff Public Health Laboratory and lecturer in bacteriology in the Welsh National School of Medicine. He was the author of articles on the technique of artificial pneumothorax in the treatment of pulmonary tuberculosis, published in the *Lancet* in 1914 and the *Quarterly Journal of Medicine* in 1917; and a controversial paper read to the Pathological Section of the Royal Society of Medicine on the treatment of wound infections appeared in the *British Medical Journal* of May 13, 1916.

The death on June 13 at his home in Buckinghamshire of Dr. GEORGE EDWARD TWYNAM at the age of 85 removes one of the few remaining links with the early pioneers of Listerian surgery. Educated at University College Hospital, where he shared lodgings with three other students, one of whom was Victor Horsley, he qualified as M.R.C.S. in 1880 and took the L.R.C.P. in 1881. After doing a house appointment at his own hospital he obtained a post as house-surgeon in Sydney. When he arrived there he found the medical profession much interested in what they had heard and read of Lister's discoveries; but few of them had first-hand knowledge of the new antiseptic technique, and they welcomed a young surgeon who could show them how things were being done in London. The result was that Twynam soon found himself elected to the honorary staff of the Prince Alfred Hospital, Sydney, and later became lecturer on clinical surgery at the university. He was a successful general practitioner and consulting surgeon in Sydney for several years, but eventually returned home for private reasons. He then started in general practice in South Kensington, where he was well known for many years and was both popular with and respected by his colleagues. Some years ago he retired, at first to Sevenoaks and later to Buckinghamshire. He retained his physical vigour in marked degree: when well turned seventy he was accustomed to take country walks of thirty miles or even more, purely for recreation. He had many recollections of Sir Victor Horsley as a young man: one of Horsley's foibles which Twynam used to recount was his persistent refusal to pass his fellow students the mustard pot at meals; he held that mustard was an artificial stimulant to the gastric mucosa, as harmful as alcohol. You could get up and fetch it for yourself if you wished, but he wouldn't have act or part in the matter by passing it across the table.

The death of Dr. DOUGLAS DENT MALPAS has broken another link with Victorian life and manners. We lose thereby one of our most worthy colleagues in the outer world of general practice, where the limelight seldom penetrates but the traditions of the profession are upheld and its influence for good is felt both by patients and by the community. Son of the Rev. Henry Malpas of Bristol, Malpas studied medicine at Guy's, Aberdeen, and Paris, and, after qualifying as M.R.C.S.Eng. nearly 65 years ago, took his M.B., C.M. at Aberdeen in 1878 and M.D. in 1881. For over thirty years he was in consulting practice among the British at Biarritz, where his professional skill and character of mind and heart won for him a position of considerable influence. He attended many distinguished visitors there, including King Edward VII, in a consultant capacity. After qualifying, he travelled in what is now called the Middle East and round the world for some eighteen months with a wealthy patient, on the verge of a mental breakdown, for whom he and his wife made a home for thirty years—a severe test of Christian friendship. He was intensely religious, one of the quakerlike Plymouth Brethren, and maintained a keen interest in evangelistic work throughout his life. Distinguished in appearance, dress, and manner, he was essentially grave and serious, a blend of the Senator and Puritan. He retired to Boscombe during the last war, and died there on June 9 last in his ninetieth year. In 1886 Malpas married Sarah Culme Shepherd, who predeceased him. Their eldest son died of cerebrospinal meningitis in the Crystal Palace epidemic while on active service during the last war. The surviving son, Dr. Douglas Duncan Malpas, is in radiological practice at Bournemouth.

Medical Notes in Parliament

Pharmacy and Medicines Bill

In the House of Commons on July 8 MR. ERNEST BROWN moved the Second Reading of the Pharmacy and Medicines Bill, which, he said, repealed the Medicine Stamp Duty in accordance with a promise given by the Chancellor of the Exchequer last April. Pointing out that the stamp duty yielded about £800,000, and the licence duty about £40,000, he said that the tax had become difficult to collect, if not unworkable. The same medicine might be sold in one shop without regard to tax, while in another shop tax would be paid. None of the exceptions was justified on grounds of public health, and the whole basis on which the duties rested was defective. The result of the application of the Purchase Tax to medicines at 16⅔% was that the estimated yield would be about £3,000,000 a year, or nearly four times the present annual yield of the medicine duties. The continuance and maintenance of the chemist's profession were essential to the welfare of the community, and the trading interests had reached an agreement on the various points concerned. The agreement was provided for in the Bill and was a solution which would safeguard the interests of chemists. There was no desire to interfere with the interests of legitimate herbalists.

SECRET MEDICINES AND ADVERTISEMENTS

The Bill regulated the trade in medicines and, in regard to secret remedies, the course had been chosen which was most likely to help. The brutally scandalous age of patent medicines was now largely a matter of the past, but in the present state of the law an opportunity still existed for the unscrupulous to trade on the fears of the uninformed and credulous. Any qualified person would in future be able to tell the value of any medicine and to advise the user accordingly. The only kind of medicines in which disclosure of ingredients was not required would be those supplied to individual persons and prescribed according to their needs, such, for example, as a mixture made up on a doctor's prescription.

Advertisements dealing with remedies for certain serious diseases or with articles for procuring abortion would in future be prohibited. Legislation of this kind already existed prohibiting the advertisement of articles recommended for the treatment of venereal diseases and cancer. The present Bill would prohibit the advertisement of such remedies as those for Bright's disease, cataract, diabetes, epilepsy or fits, glaucoma, locomotor ataxy, paralysis, and tuberculosis. The basis for this list was the report of the Select Committee of 1914, and the diseases had been selected because, like cancer and venereal disease, they were all of a serious nature, and were susceptible of alleviation, if not cure, by normal methods of treatment, and because it was dangerous in each case to delay seeking treatment by resorting to quack medicines. The Bill also made minor amendments to the Pharmacy and Poisons Act, and was the first step in the journey on the road to reform.

LONG-OVERDUE MEASURE

In the debate which followed, Mr. BEVERLEY BAXTER, speaking as a member of the Committee of 1937, said that although the Bill looked very innocent and constructive, it had a tendency to place monopoly powers in the hands of the British Medical Association, which was a very reactionary institution. There was a tendency to ban things too much. He would rather have a system of inquiry into and judgment on the efficacy of the various remedies. Mr. J. GRIFFITHS said that the only way to prevent the exploitation of the poor was by providing a real State Medical Service.

Prof. HILL extended a warm welcome to the Bill, which, he said, was long overdue. We had been too respectful and tolerant of vested interests in the past, which had exploited the sick and suffering, and it was time we realized that *laisser faire* in this matter led to cruel scandals. He complimented the Minister of Health on his courage in bringing in the Bill. Mr. H. STRAUSS said that the Bill would still permit the kind of advertisement designed to produce a sense of ill-health. The best way to stop these advertisements would be to have distinguished doctors broadcasting on the value to be placed on the advertising of some kinds of medicine.

Sir ERNEST GRAHAM-LITTLE supported the Bill, but regretted that so little was proposed to be done by it. A larger quantity of medicines was consumed by the people of this country than anywhere else in the world. It was not good that persons should dose themselves without check. One reason for the immense increase in the use of medicines was the power of the Press. He did not think that the proposal for restricting advertisements of medicines went far enough.

Mr. R. T. DAVIES said that the Bill did not deal with advertisements of surgical appliances, such as aids for the deaf, which were often sold at high prices. He asked if the word "advertisement" covered speeches by quacks in the market-places as well as the printed word.

STATE REGISTER OF PROPRIETARY MEDICINES

Mr. WAKEFIELD urged that the Bill did not go far enough in the control of proprietary medicines, but hoped that it was only a beginning. Many persons, he said, felt that the State should take a greater responsibility for the proprietary medicines now offered for sale. The goal to be aimed at should be, if a medicine were valuable and the claim made for it reasonable, the State should authorize its sale. If the medicine were banned it should be on the responsibility of the State entirely to prohibit the sale. That would mean the introduction of a State register of proprietary medicines.

Sir FRANCIS FREMANTLE expressed regret that it had not been found possible to include advertisements of surgical appliances in the Bill. The Bill made a beginning in the stopping of fraud and would help toward the promotion of truth in the application and use of medicines. He regretted that the Bill did not compel disclosure of the quantity of the component parts of the preparations. The gibes which had been made against the British Medical Association were most unfair and unjust. He expressed the hope that in a few years' time a useful amending measure would evolve from the experience gained by the working of this Bill. It was ridiculous to describe the Bill as hasty legislation. Captain ELLISTON said he hoped to put forward amendments in committee for the enforcement of its provisions. The quantity as well as the nature of the substances in any preparation ought to be disclosed.

Miss HORSBRUGH, replying to the debate, denied that the Bill prejudiced the little man compared with his bigger competitor. Herbalists, if they were not carrying out the law, would be shut down after the Bill had passed. The only difference would be that they, like other people, would be compelled to put the ingredients of the mixtures they sold on the bottles or packets. No impediment would be placed on the sale of such drugs as insulin; the object of the Bill was not to prevent things being sold but to let the public know what they were buying. The Bill did not profess to deal with advertisements as a whole, but only certain classes of advertisements. The fact that the ingredients of a remedy had to be disclosed would, in many cases, stop what might be a ramp.

The Bill was read a second time.

The Milk Situation

In the House of Lords on July 1 Lord TEVIOT called attention to the present agricultural policy of the Government, especially in regard to the best treatment of the land to produce the maximum quantity of healthy food.

Lord DAWSON said that the present consumption of milk was probably greater than at any other period. It had contributed in no small measure to the good health of the people, notwithstanding the rationing of staple foods and the inevitable wear and tear of the times. While the consumption was increasing, however, the production of milk was decreasing. We wanted to prevent illness and maintain health, and for that milk was necessary. Last winter we were fortunate in the matter of epidemic illness, but we could not be sure that we should have equally good fortune in the coming winter. We must, therefore, maintain our dairy herds at almost any cost. We could curtail meat and even cheese so long as there was sufficient milk. Milk was the keystone of the nutritional arch, and if we interfered with that keystone we should weaken the whole fabric.

The problem of milk production was concerned with winter feed for dairy cattle. If food production was to be maintained in the coming winter, dairy cattle must have priority of home-grown feeding stuffs and the balance which they needed above these must be obtained by importing feeding stuffs. The only alternative, if we could not do something to stop the diminishing production of milk by giving real priority to dairy herds, was to reduce the consumption of milk in this country. That would, however, inevitably entail risks in the coming winter and might even be fraught with danger. He hoped that a compulsory system of milk rationing, with all its attendant evils, could yet be avoided.

The Services

BIRTHDAY MEDICAL HONOURS

The names of the following members of the medical profession in the Services appear in the Birthday Honours List in a *Supplement* to the *London Gazette* published on July 1.

K.B.E. (Military Division)

HAROLD EDWARD WHITTINGHAM, C.B.E., M.B., Ch.B., F.R.C.P., Air Marshal, Royal Air Force. Honorary Physician to the King. Director-General of Medical Services, Air Ministry.

C.B. (Military Division)

CYRIL VERITY GRIFFITHS, D.S.O., M.R.C.S., L.R.C.P. Surgeon Rear-Admiral, R.N. Honorary Physician to the King. Deputy Medical Director-General, Admiralty.

ROBERT CECIL PRIEST, M.D., F.R.C.P. Major-General, late R.A.M.C. Honorary Physician to the King. Consulting Physician to the British Army and Professor of Tropical Medicine, Royal Army Medical College.

O.B.E. (Military Division)

ABANI MOHAN CHAUDHURI, M.B., F.R.C.S. Major, I.M.S.

EDWARD CAWDRON CORDEAUX, D.S.O., M.B., B.S. Acting Captain, R.N.

RONALD GRANT DINGWALL, M.B., Ch.B. Surgeon Lieutenant-Commander, R.N.

WILLIAM RALSTON DUNCAN HAMILTON, M.B., Ch.B. Major (Temporary Lieutenant-Colonel), R.A.M.C.

THOMAS MADILL, M.B., B.Ch. Surgeon Commander, R.N.

M.B.E. (Military Division)

GEORGE JAMESON CARR, M.B. Lieutenant (Temporary Major), R.A.M.C.

Mentions in Dispatches

Surgeon Lieutenant John Fawcett Hughes, R.N., Surgeon Lieutenant Frederick Bagot, R.N.V.R., Surgeon Lieutenant Robert Lewis Ferguson, R.N.V.R., Temporary Surgeon Lieutenant Richard Constant Ponder, R.N.V.R., and Temporary Surgeon Lieutenant John Heaton Simpson, R.N.V.R., have been mentioned in dispatches for good services in the last six months or more of war.

R.A.F. AWARD

The King has awarded the Air Force Cross to Flight Lieutenant William Kilpatrick Stewart, R.A.F.V.R.

CASUALTIES IN THE MEDICAL SERVICES

ROYAL ARMY MEDICAL CORPS

Temporary Major HUGH EMRYS BONNELL lost his life by enemy action in May at the age of 35. He was educated at the University College of South Wales and Monmouthshire and at King's College Hospital, qualifying M.R.C.S., L.R.C.P. in 1931. He was chiefly interested in pathology and held appointments in this specialty at King's College Hospital, Manchester Royal Infirmary, and the Royal East Sussex Hospital, Hastings, before becoming pathologist to the East Ham Memorial Hospital and consulting pathologist to the Runwell Hospital, Wickford.

Prisoner of War

Captain Eric Davey Trounce Lewis.

EPIDEMIOLOGICAL NOTES

Infectious Diseases for the Week

Enteric fever and dysentery, which in recent weeks have been on the increase in England and Wales and in Scotland, have declined in both countries during the week under review. Cerebrospinal fever has increased slightly and, in England and Wales, diphtheria and whooping-cough to a greater extent. Acute poliomyelitis, which tends to appear in June, is less than one-half as frequent as in the corresponding week of 1940.

Cerebrospinal Fever

For the second week in succession the incidence of cerebrospinal fever has exceeded that of the corresponding period of last year; it is present in over two-thirds of the administrative areas of England and Wales, but only in five were more than 9 cases notified—namely, Lancaster 34 (Blackpool 2, Liverpool 11, Manchester 2, Rochdale 2, Nelson M.B. 3, Whiston R.D. 2, and 1 each in Bolton, Oldham, Southport C.B., Ashton-under-Lyne M.B., Brierfield U.D., Denton, Fulwood U.D., Heywood M.B., Huyton with Roby U.D., Leigh M.B. and Poulton le Fylde U.D., Warrington R.D.); Yorks, West Riding 21 (Sheffield 8, Huddersfield 2, Leeds C.B. 2, and 1 each in Barnsley, Bradford, Rotherham C.B. and R.D., Wakefield, York, Adwick-le-Street U.D., Brighouse M.B., Harrogate M.B., Swinton U.D., Sedbergh R.D.); London 13 (Bethnal Green and Hammersmith 2 each, Camberwell, Fulham, Holborn, Islington, Lambeth, Lewisham, St. Pancras, Poplar, Stepney 1 each); Gloucester 12 (Bristol 8, Gloucester C.B. 1, R.D. 1, Cheltenham 2); Middlesex 12 (Enfield U.D. and Hornsey M.B. 2 each, and 1 each in Feltham U.D., Friern Barnet U.D., Hayes and Harlington U.D., Hendon M.B., Tottenham M.B., Twickenham M.B., and Wembley M.B.); Glamorgan 10 (Cardiff 2, Swansea 1, Caerphilly U.D. 1, Gelligaer U.D. 1, Neath M.B. 2, Ogmore and Garw U.D. 1, Pontardawe U.D. 2). In Scotland fifteen counties or burghs were affected, chiefly, Glasgow 15, Edinburgh 7, and Ayr county 5.

Dysentery and Enteric Fever

Dysentery appeared in England and Wales in eighteen areas and enteric fever in twenty-six, as against twenty-one and twenty-five respectively in the previous week. The former was fairly widely distributed in Lancaster. The paratyphoid fever epidemic in Birmingham and surrounding district, referred to in these columns last week, continues. In Lancaster the 32 dysentery cases notified occurred in Blackburn 4, Liverpool 1, St. Helens 3, Lancaster M.B. 1, Blackburn R.D. 10, Preston R.D. 3, Warrington R.D. and Whiston R.D. 5 each. More than one-half the cases of enteric fever notified in the whole country belong to the Birmingham outbreak—namely, Warwick 43 (Birmingham 24, Coventry 5, Solihull U.D. 11, Sutton Coldfield M.B. 2, Meriden R.D. 1); Worcester 11, all in Bewdley M.B.; Stafford 6 (Smethwick 3, Stoke-on-Trent, Aldridge U.D., and Lichfield M.B. 1 each). The only other counties affected to any extent were Leicestershire 12 (Leicester 8, Barrow-upon-Soar R.D. 2, Billesdon R.D. 2), and Somerset 12 (Taunton 8, and 1 each in Wellington U.D., Bathavon R.D., Chard R.D., and Long Ashton R.D.). In Scotland there were 25 cases of paratyphoid B fever, of which 13 were in Dundee; and 5 of typhoid (3 in Glasgow and one each in Angus county and Ayr burgh).

No. 24

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 14.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases: a blank space denotes disease not notifiable or no return available.

Disease	1941 (a)	(b)	(c)	(d)	(e)	1940 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	236	13	42	2	10	232	11	62	1	7
Deaths		—	4				2	5		
Diphtheria	853	36	200	21	29	698	40	206	35	32
Deaths	26	1	5	1	—	12	—	9	1	2
Dysentery	97	8	43	—	—	24	1	31	—	—
Deaths			—	—	—			—	—	—
Encephalitis lethargica, acute	3	1	—		—	—	—	—		—
Deaths		—	—				—	2		
Enteric (typhoid and paratyphoid) fever	146	4	26	3	4	77	4	6	6	1
Deaths	—	—	—	—	—	1	—	—	—	—
Erysipelas		—	41	8	3		18	29	1	1
Deaths							1	—		
Infective enteritis or diarrhoea under 2 years	28	1	4	4	1	43	7	11	7	8
Deaths										
Measles	11,145	324	112		12	9,210	23	1,877		61
Deaths	9	2	—	1	—	6	—	4	3	2
Ophthalmia neonatorum	81	6	23		—	90	11	32		—
Deaths										
Pneumonia, influenzal*	804	33	2	—	2	551	20	2	4	8
Deaths (from influenza)	19	2	2	—	1	11	2	1	—	—
Pneumonia, primary			195	8				179	6	
Deaths		28		7	8		20		11	12
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	5	1	—	2	2	11	—	1	—	1
Deaths		—	—				—	—		
Puerperal fever	1	1	7	2	1	3	3	10	1	—
Deaths							—			
Puerperal pyrexia	109	11	16		2	161	12	13		—
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	973	30	131	49	27	888	28	105	37	57
Deaths	1	—	—	—	—	—	—	—	1	—
Small-pox	—	—	—		—	—	—	—		—
Deaths				—	—			—	—	—
Typhus	—	—	—	—	—	—	—	—	—	—
Deaths				—	—			—	—	—
Whooping-cough	4,764	140	339		5	744	7	74		18
Deaths	19	2	10	2	—	3	—	1	—	—
Deaths (0–1 year)	299	21	77	28	15	281	27	61	28	26
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,210	515	638	204	152†	4,333	706	605	170	153
Annual death rate per 1,000 persons living			13.9	13.5	—			12.2	11.3	13.4
Live births	5,158	396	904	362	184	6,149	915	909	365	260
Annual rate per 1,000 persons living			18.4	24.0	—			18.4	24.4	22.8
Stillbirths	194	10	34			229	42	31		
Rate per 1,000 total births (including stillborn)			36					33		

* Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland. † Owing to evacuation schemes and other movements of population, the birth and death rates have had to be omitted for Northern Ireland.

Medical News

The British Institute of Philosophy announces that a short address, entitled "The War and Philosophy," will be delivered by Sir W. David Ross, Provost of Oriel College, Oxford, at University Hall, 14, Gordon Square, London, W.C.1, at 1.45 p.m. on Tuesday, July 22. Cards of admission can be had from the Director of Studies at University Hall.

The summer meeting of the Association of Clinical Pathologists will be held at Cambridge on Saturday, July 19. The scientific part of the proceedings will open in the University Department of Pathology at 10 a.m., and the day's programme will close with dinner in Trinity Hall at 7 p.m. A number of papers and demonstrations have already been promised. Members who notify their intention of attending will receive information as to accommodation and final arrangements for the meeting from Dr. C. H. Whittle, Brookfield, Trumpington Road, Cambridge.

The following medical promotions in and appointments to the Order of the Hospital of St. John of Jerusalem were announced in the *London Gazette* of June 27. As Knights: Lord Horder, G.C.V.O., Major-General the Hon. Sir E. Fiset, C.M.G., D.S.O., V.D., Lieut.-Colonel I. Fraser, S. McCormac. As Commanders: Captain R. Williams, G. B. Peat, Colonel W. W. White, V.D., Major-General Sir Gordon G. Jolly, K.C.I.E., I.M.S., Majors S. Copley and A. T. Smith. As Officers: J. E. Dovey, Colonel J. Pratt-Johnson, *M.C.*, V.D., Captain G. W. C. Bissett, J. A. Corrigan, H. A. Creighton, A. G. Morris, E. W. Stewart, J. Ferguson, H. B. Pierce, A. M. Robertson, J. Wells, Lieut.-Colonels J. W. Tice, F. A. Barker, C.I.E., O.B.E., I.M.S. (ret.), and W. S. C. Copeman, R.A.M.C. As Associate Officer: B. W. Advani. As Serving Brothers: C. R. Hoskyn, D. J. Nicol, H. Fallows, J. L. Lewthwaite, C. Lundie, B. W. MacDonald, C. Marks, J. Gillan, J. R. Larson, M. V. Roberts, E. L. Davies, H. Lloyd. As Associate Serving Brother: S. J. Hoffman. As Serving Sister: Mary I. Place.

Profs. Henrik Dam the biochemist, and George de Hevesy the chemist, of Copenhagen have been appointed lecturers at Harvard University for the current academic year.

A central health institute has been founded in Turkey. It will contain a school for public health and an institute of hygiene.

The New York State department of health reports that 434 typhoid carriers, exclusive of those in State institutions, were under supervision in Upstate New York at the close of 1940. Thirty-seven new cases were added during the year.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS of their articles must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager (hours 9 a.m. to 5 p.m.). Orders for copies of the *Journal* and subscriptions should be addressed to the Secretary.

TELEPHONE NO.—B.M.A. and *B.M.J.*: EUSTON 2111.

TELEGRAPHIC ADDRESSES: EDITOR, *Aitiology Westcent, London;* SECRETARY, *Medisecra Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

QUERIES AND ANSWERS

Obstinate Oedema

"X. Z." asks for advice in the case of a man of 45 with retinitis pigmentosa, six toes on each foot, a mental defect; he is not obese but has oedema of both legs, and his underclothes tend to fall into small holes. At times the oedema extends and becomes very marked in the eyelids and around the neck and scrotum and penis. There is no albuminuria; blood pressure 140/86. The oedema does not respond to caffeine or mercurial diuretics or to increase or decrease in salt or protein. He refuses hospital investigation.

Ragged Finger-nails

"R. S. M." writes: "F. R. S." may be interested in the few points I can add to his description (June 21, p. 952). The patients in my three cases, aged 50 to 60, are closely related, active, healthy people without digestive or cardiac troubles. All originated before food restrictions and have not grown worse since. The fingers very often "go dead." This is followed in one case by chilblains, often involving the nail-beds. When the inflammation subsides the nail is partially detached from its bed, and as it grows becomes longitudinally ridged and brittle. In a second case the nails are almost lost; in the third mild persistent infection is superadded. Toe-nails are normal. Calcium and parathyroid are very useful in controlling the chilblains.

Income Tax

Purchase of Additional Car

"J. M." has a car which requires extensive overhaul and spare parts will be difficult to obtain. In the meantime he has obtained a similar second-hand car and is using it as a spare car.

* * The cost of the additional car ranks as capital expenditure * and, of course, depreciation allowance is due in respect of it. On the other hand spare parts represent ordinary maintenance and their cost can be charged against current earnings. If one of the two cars is scrapped and parts of it used for repairing the other, a rather difficult situation will arise. It is thought that in such circumstances the inspector of taxes may agree to allow as a deduction the market price of the parts so used.

LETTERS, NOTES, ETC.

The Unburned Cornea

In one of Jules Verne's books the hero has his eyes put out with red-hot irons, but a film of tears over the cornea is turned into steam, and when the lid burns finally recover it is found that the cornea, thanks to this protective layer, has not been burned at all. At the June meeting of the Section of Ophthalmology of the Royal Society of Medicine Mr. T. M. Tyrrell, who read a short paper on "War Injuries of the Eye," gave an up-to-date example. A boy, eleven years of age, reputed to be "England's youngest air-raid warden," was admitted to hospital with a badly burned eye. His air-gun had become blocked by a pellet jamming in the rifle, and to free it he fired several others, which all stuck behind the first. Then he had the bright idea of heating the barrel in a watchman's coke fire, and, observing some melted lead run out of the muzzle, he put the muzzle to his eye to see if it was clear, whereupon a further stream of hot lead entered the eye. Mr. Tyrrell was able to pick out a complete cast of the conjunctival sac, and beneath it he found the cornea quite clear and bright, though the conjunctiva of the fornices was oedematous and parboiled. In the result there was nothing worse than a small symblepharon of the lower fornix. Burns of the cornea are very uncommon, and another speaker in the same discussion said that he, too, had seen a case in which molten metal had entered right into the eye and all that he had had to do was to take off a cast of the front of the cornea, leaving the cornea intact. It was suggested that the fluid in which the cornea was bathed was in a colloidal state and formed a protective layer which would not conduct heat, so that the cornea escaped undamaged.

Earlier Time for Receipt of Advertisements

Owing to the ever-increasing difficulties of production under war conditions it is now imperative that advertisements announcing vacancies for medical officers of health, hospital posts, locumtenents, etc., should reach the Advertisement Manager, "B.M.J.," Tavistock Square, W.C.1, not later than first post on the Monday of the week of issue. If proofs are required the "copy" must reach this office on the Wednesday in the week preceding publication of the announcement.

The Medical Directory

The Editor of the *Medical Directory* (104, Gloucester Place, Portman Square, London, W.1) writes: To maintain the accuracy of our annual volume we rely upon the return of our schedule, which has been posted to each member of the medical profession. Should the schedule have been lost or mislaid we will gladly forward a duplicate upon request. The full names of the doctor should be sent for identification.

Corrigendum

In the article headed "Lactose for Prevention of Odour in the Closed-cast Treatment of Compound Fractures," by Drs. ALLAN D. WALLIS and MARGARET J. DILWORTH (May 17, p. 750) the first sentence of the third paragraph should read as follows: "In selecting a sugar for use in wounds lactose was chosen instead of glucose because, since its molecule is larger, *first*, a solution of it isotonic with the blood contains more sugar, and, *second*, loss by absorption from the wound should be less."